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Don't Forget Mother Radio

I enjoy your magazine very much! (I read the articles, but primarily I use it for keeping abreast of the current prices for equipment in the ads!)

One comment: In the article "Experimental Applications..." (*TCP* Sept 95) Frank Garcia mentions some of the sites that feature RealAudio. One server that he failed to mention was our very own CBC. I have enjoyed listening to complete Morningside interviews and clips from the RealTime shows while cruising. It's good to see one of our public corps at the forefront like this and we should do our best to get the word out!

Thanks, keep up the good work.
John Deweerd, via Internet

***DT Replies.** Good point! And if you happened to read the article on the 1995 Canadian Internet Awards in the same issue you will have noticed that the CBC picked up three awards: for best cultural site, best media use of the Internet and best development project (the latter for the CBC Radio pilot)*

Computer Based Training

I read with interest the article "Lessons in Computer Based Training" in the Sept. issue of *The Computer Paper*. Maybe I missed it but I didn't notice any indication in the article regarding where and how I might be able to access this product. The tone of the article suggests that Rod was reviewing a product. Is this so or is this a service that one must subscribe to? Either way I somehow failed to pick up on the access information. Please help?

Thanks, Bruce Pitkin

***RL replies.** EdStart is a Windows 3.x based commercial program. It uses a metering system whereby you buy course credits and the program keeps track of how many credits you use.*

It installs from four disks onto a 486 66 Mhz with 8MB of memory, sufficient hard drive space (10 MB) and a CD-ROM. A LAN installation will need Novell with IPXODI drivers. For a stand alone install the hard drive will need enough space for programs, typically 10-12 MB each.

The program is an invasive one that reaches deep into the operating system and tracks program access. The software is divided into three parts. The Manager icon runs a program which allows a operator to set up names and identities for users. Access to courses by individuals or groups of individuals and any monetary limits can be set. The software is extremely flexible and will allow numerous settings and controls.

The Student icon opens an access program. If you, as student, know the password and have been authorized access you can sign on at any terminal of the LAN or on the stand-alone machine, and take a course. Providing that you have not exhausted your credits, you can take the same course twice or leave a course half way through and later return to the same location.

There is another part of the progam that runs whenever the Manager or Student programs are run. This part is the guts of EdStart. The program uses a either piece of hardware called a Clock Plug or software to emulate a Clock Plug to keep track of the credits used.

For information on the EdStart programs contact First Class Systems at 800-567 7766 or 604-538-7246

Corrections

OOPS

Some corrections for the Printer [illegible] excellent PC table accompanying S[illegible] [illegible] test lab reports

- The street price for the HP 5[illegible] [illegible] $1,500
- The Brother HL-660 has 2 MB [illegible]. The drum life of the HL-[illegible] is 17 000 pages. The HL-1[illegible] [illegible] toner and drum [illegible]
- [illegible] IBM Aptiva comes with [illegible] MB [illegible] drive not 1 MB as [illegible] — CF

ClarisWorks 3 Does Work On Win95

Christopher Pratt with Claris Corp. [illegible] exception to our stating that we couldn't [illegible] ClarisWorks 3.0 to work on an [illegible] version of Windows 95. He wrote:

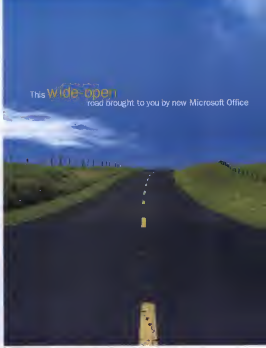
"ClarisWorks 3.0v1 may not [illegible] with earlier builds of Windows [illegible] [illegible] 3.0v2 here at Claris on [illegible] 950 — no problem. In fact I usually [illegible]commend to our customers who [illegible] about its speed to upgrade to Windows [illegible] performance is fairly good compared [illegible] Win 32s on Win 3.x (assuming of course they've got at least 8 megs of RAM).

[illegible]

Apple Defender Takes Exception

Authors Jeff Evans and Chris Fisher in their article "No more pencils. No more books" (*TCP* Sept. 95) discuss the Macintosh Performas.

Their hesitation about recommending these machines wholeheartedly is that they disliked "the glare from the Performa's monitors and the one drawback to having all in



one box type units is that you can't upgrade the size of the monitor"

The drawback that they mention is quite wrong The Performas have external video support allowing a second monitor to be easily attached. Surely this is the best possible upgrade one could ask for built in support for two monitors.

Andrew Cripps, via Internet

JE replies *Both Chris and I really really liked the Performas, especially the 5200CD I'm not sure how much more "wholehearted" we could have been in our praise I think we were very positive indeed about the virtues of the product, which are many As far as the built in monitor is concerned its only limitations are that it isn't based on a Sony Trinitron tube and so the resulting image is not quite as sharp as that on other Apple monitors (though the display is still eminently viewable The Apple folks said that the choice of a non Trinitron tube was made as a cost reduction move to make the unit more affordable) and the monitor can't be tilted (short of tilting the whole unit, i e , by propping it up with spare MS DOS manuals — a difficult and possibly dangerous kludge)*

For the average Performa user adding a second, better monitor (tiltable and Trinitron based for example) would somewhat defeat the purpose of the all in-one construction of the 5200CD —clutter up the desk, cost more money, external cables, blech

The whole point of the 5200CD is that everything the average user needs is there compact affordable convenient The lack of monitor tiltability is a small thing worth mentioning but not all that significant Spending an extra $500 $1500 on a better monitor is certainly an option, but I think it would strike most Performa users as an unnecessary, costly wasteful (what do you do with the original built-in monitor?) decision. Anyone who really wants a better monitor would probably just buy the 6200 model and plug in whatever kind of monitor they want.

Anyway, thanks for defending the Mac It's always good to hear from fellow Mac users

Now fewer things will get between you and the way you want to work.
Start

More on Macs — Which Percentage? Where?

Did I miss Something? In your September issue of "No More Pencils, No More Books" Jeff Evans and Chris Fisher state that most students will end up running Windows with 15 percent running Mac OS Then in the next statement it is indicated that the Mac OS is probably used somewhat more in home and school settings.

Did I get it wrong, or do students not generally work in a home or school involvement?

I am not sure of percentages but it would seem that the education market has a very high penetration of Mac equipment in comparison to the larger business market that skews the percentage to 80 percent DOS utilization My children all need to use Mac equipment as do most of their friends I would have been better served by this article if it had included some of the lower end/cost, component-based Mac systems. My children need to be able to produce reports (i e , word processing) make up diagrams (i e , graphics) do research (i e communications) and play games (yes even a a father knows that kids need to have fun) Why then have your reporters placed a bias of "only a top end multi thousand dollar unit will do" upon this article?

It would seem to me they have placed more of their own desires within this article than is appropriate for their intended audience As a personal comment I enjoy your paper but do feel that the DOS bias within your paper is much higher that the 80 percent market share it commands

Les Roberson, via Internet

CF replies. *Certainly the Mac has a higher penetration in primary/junior schools However if you are looking at high schools and universities the trend is reversed. We were trying to be holistic in our approach I agree that there could have been greater Macintosh coverage. The article's figure of 15 percent for the Macintosh penetration may have been a little high, I would not be suprised to find that the actual figure is under 10 percent.*

On your last comment I must disagree as we bend over backwards to accommodate Macintosh products and news. We have more than our fair share of Mac lovers here but developments in that market are much slower than in the PC one Thank you for taking the time to send us your comments

JE adds *The last figures I saw for worldwide PC sales indicated that the Mac has around 10 percent of the world market, and dropping Apple's unit sales and revenues are still increasing at a respectable rate, but the world PC market is expanding very rapidly, and Apple tends not to compete in many lower price markets as their products are still at a price disadvantage, and many people are simply unaware of the Mac as an alternative to DOS and Windows*

I think that for a few quarters in 1990-1991, Apple was actually selling up to 24 percent of all

➤

Continued from page 7

personal computers being bought in Canada. This was at a time when they came out with their first cheap color Macs, and the PowerBook was notably superior in features to the DOS notebook PC competition. A lot of the Mac sales at that time were to owners of early models of the Mac who were rushing to upgrade to color Macs, so although the numbers looked good, the actual user base wasn't really expanding all that fast. By 1993, the Mac market share was back to the 15 percent level.

Although the Mac still does respectably in education, the home and graphic arts/communications areas, it is declining overall in Canadian market share. The latest figures I've seen indicated market share in the 11-13 percent range, depending on the quarter and the source. Compaq, AST and IBM sometimes have all three top rankings, whereas until recently Apple used to always be in the top three.

I think that Apple should be concerned about market share, since if it drops below a certain critical level (say 10 percent?), there could be a cumulative effect of diminishing public awareness, loss of retail presence and dealers, loss of third party developers, etc., which could set up a very negative momentum.

For now new products like the Performa line and the 8500 and 9500 models are keeping sales up, but I get the feeling that Apple's only hope in the short to medium term is to keep innovating like mad and continue to differentiate themselves from Windows PCs by offering leading edge technology well ahead of the competition.

I think Windows 95 is a blow to Apple, and it continues the trend of eroding Apple's competitive advantages. I wouldn't count them out, since they are still the leaders in usability and integrated solutions, but I don't think Apple can ever slow down or make a serious misstep without risking fatal damage.

I personally prefer the Mac to the Windows/Intel platform, and would hate to see it decline, but I don't know how the Mac, at this stage, can ever break out of its niche position, especially in the business market.

I had some hope that Mac clones could possibly reverse the situation, but they still are not at all numerous in Canada, and it's a question whether they'll actually increase Mac market share, or simply steal sales away from Apple and give them to the clone Mac makers.

Wonderful, Far Out Sightings

I really enjoy the "Sightings" cartoons in your paper from Steven Johnson. I must admit I can't make out sometimes whether it's satire or real! Many of the sketches are indeed far out, but not so far out so that it's totally outside the realm of possibility.

There are many times that I say to myself, "Now *that* would be a neat product." Sometimes I think all the products are for real, but I would feel awfully embarrassed if it was all a joke and I was taken for a fool.

The "Cyclehomes" in your September issue looks like something the Japanese would already be using.

Carl Lum, via Internet

***GB replies.** Yes, we've had requests from people who want to know where they can buy "Sightings" products :-)*

But we also get occasional complaints, such as the one, also in the last issue of TCP, for the anti-attacker shoes, where a reader thought we were promoting anti-male violence and encouraging the use of weapons. Sigh

DENIART'S GLYPHIC FONTS • Deniart Systems of Toronto has announced three new font sets in Adobe Type 1 and TrueType formats for Macintosh and PC-Windows computers. The Meso Americana Series includes hieroglyphs and decorative symbols from Mexico and South America. In the Ancient Writings Series Deniart presents six typefaces based on ancient and magical writings. The company has also introduced Volume 3 of its Egyptian Hieroglyphics series.

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Knowing that this sort of information quickly dates itself, Frontier Technologies is making this a subscription service with regular updates available monthly. The initial release is available for $14.95 U.S. and an annual subscription costs $6.95 U.S. per issue.

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A Whole New Way Of Doing Things

A Graphic Experience

I had the privilege of doing a bit of work on the *new Canada Computes! Alberta Edition* this month. Linda Richards, our Western Editor, was doing most of the real work, editing the typos and polishing the layout. I was doing the big picture stuff, saying "I like this, this needs a picture; let's nuke this, let's change this headline," and so on.

After I had done that for a while, I ran out of things to do (management has such an easy role in life), so I volunteered to come up with pictures to illustrate the articles. This used to be one of my favorite jobs, back in the early days of *The Computer Paper* when I did most of the paper myself without the help of all these great people who actually know what they're doing. Instead of going through our clip-art collection and hunting through brochures and press releases like I used to do, I went out on the Internet, accessing the World Wide Web for pictures. It was great, I found a whole range of pictures to complement the stories from InfoSeek, Web Crawler and the Lycos Search Engine.

Examples

We needed something to round out Myles White's article on databases (he had, to his credit, included some screen shots of the programs discussed, but they were not very lively), so I went to Lotus' site and grabbed a colorful JPEG file of a Lotus Notes box, then on to Borland's site for a screen shot of the new Paradox 95 and a box shot of Visual dBase, finally ending up at Microsoft's site for some images of Access. Search Terms: Lotus Notes, Paradox, Access.

I visited Apple's site and collected some nice images of Apple's new notebooks, the 8500 series mini tower units, and a puzzle piece diagram of Copland, the company's next level operating system. Search Terms: Apple, Copland.

I gathered some images on Ergonomics from a US University site, noting that it was not trademarked, in fact their goal was to have the information on their web site disseminated as widely as possible. Search term: Ergonomics.

The dissonance of a nun asking about using OS/2 had made me laugh when I had first seen it in an IBM OS/2 commercial on television. This same image shows up on their Web site, so I downloaded it to enhance our OS/2 Column. I should note that IBM's press department is better organized than most and in the past has sent us higher resolution graphics of their current computers on CDs. This is also a useful approach to getting usable graphics.

Once these locations are identified, it is easy to return to them by using the "Bookmarks" feature of Netscape. This marks a location on the 'Net for a rapid return at a later date. I have "bookmarked" IBM, HP, Apple, Delrina and a number of other sites for future reference.

Copyrights

One important point about all these sites is that they are all set up for promotional value, so none of the images were used in violation of copyright. The companies involved actually want the press to use the images this way to further discuss and promote their products. In the past, they would have sent us brochures which would end up in large piles and we could never find them when we needed them. Now, if we are interested in a product, we can simply dial up their site and access the image and information to supplement an article. I was careful not to use information or images from other publications' web sites and I encourage everyone to be scrupulous in this area as well.

The Net Result

There were numerous other items collected, the sum total of which I believe will be a much better-looking magazine that readers will find more accessible. The images are not high resolution, but will work for small shots required in ads or to illustrate small stories. These graphics can be stored on our local server drive for easier local access by ad production people and catalogued for easy retrieval.

Net Loss—The Downside

Each one of these searches usually took only a few minutes to do, but in the end, they did add up to several hours by the time I got up. (I did a few other things in there as well, had some pizza, fiddled with the BBS lists a bit and did the management thing.)

The next night, I went looking for something less specific. This time I was looking for a graphic to illustrate an article on computer security. I spent three hours and just barely managed to come up with something interesting. We added a graphic and side bar on the new movie from United Artists called *Hackers*. The experience of looking for more generalized images made me realize a major shortcoming of the Internet: its lack of organization. Because it is so diverse and everyone uses a different organization system and approach to cataloguing, it is not possible to quickly access all the computer art, graphics, icons and clip art on the 'Net. At best, the situation as it is now can best be described as totally chaotic.

Someone will create a very popular site (and even make some money) if they ever come up with a way to allow simple global searches for graphics, the way you can currently search for text in the InfoSeek and Lycos servers. Now, if they would just add that nifty IBM technology that allows you to sketch a shape and then search for the shape of things ...

Modems in the Brain

I described this new approach to a number of our production people in an e-mail message and there was quite a bit of interest expressed. One person asked "so when do we get our modems?" My response was "If everything works the way our tech support guy says, we won't need modems, we will be able to connect to the 'Net directly from our brains." He comes in with a small scalpel and a chip that he implants into our brains and voila! we are connected. It is part of a new Microsoft initiative called "a Chip in every Brain."

But seriously folks, our tech support guy is planning to connect our entire network with a mysterious box that connects at ISDN speed directly to an outside internet node. If it works, we will be able to use Netscape with no modems and get out onto the wonderful world of the Web as easily as we now connect to our local server. And here I sit, still dreaming of pushing the "Publish" button ...

The Computer Paper will be at the E Mail World/Web World/Internet Expo Show at the Metro Toronto Convention Centre, Sept. 20 & 21. Be sure to drop by our booth and say hello.

Enjoy the issue.

Douglas Alder
Editor/Publisher

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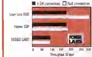

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Windows 95, Here At Last

Microsoft Canada's Big Party At Toronto's CN Tower Launches New Era For Windows PC Users

BY JEFF EVANS

A wave from computing's biggest-ever marketing campaign washed over Toronto August 23-26 as Microsoft Canada officially launched Windows 95. To everyone who has followed the seemingly endless development of Windows 95 for the last few years, it was a vast relief to see the shrink-wrapped final product available on store shelves and running on PCs. Microsoft Canada spared no expense to get the attention of the media and the general public in the Metro Toronto region as it brought its new PC operating system to the market.

Midnight Madness: Some retailers opened at 12:01 a.m. to sell Windows 95.

Press Preface

At a special media launch on August 23 high up in the CN Tower, Microsoft Canada head Frank Clegg made a graceful speech celebrating the event. He stated that Windows 95, in addition to being an operating system, is also a platform on which a host of third party software and hardware developers will create billions of dollars worth of new products. Clegg predicted that Windows 95 would constitute a major step in transforming personal computers into much more productive and usable communications tools. A huge number of computer vendors (over 250) have jumped onto the Win 95 bandwagon, and are now offering Windows 95 preloaded on some or all of their products. Of the top 20 PC makers in Canada, 19 had signed contracts with Microsoft as of Wednesday, August 23 (the only holdout was IBM, which belatedly announced on Thursday the 24th that it had signed an agreement to preinstall Windows 95 on at least some of its PCs).

Crab Apples

When asked why Apple wasn't on any of the long lists of Windows 95 licensees and developers, Clegg commented, "They never asked us about it." Although Apple hasn't joined the Windows bandwagon, it hasn't ignored the Windows 95 frenzy either. Apple is running ads in the U.S. slyly congratulating Microsoft on the release of its new operating system, while reminding the public that Apple was the first to popularize many of the features of graphical user interfaces, and hinting that there is still a lot of DOS hiding under the Windows 95 skin.

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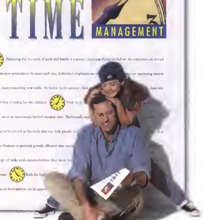

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Support Issues

Among the questions posed by the press some of the most pointed referred to the issue of technical support for Windows 95 Many of those who had participated in the Windows 95 beta program over the last several months had been dismayed by the bugginess of the pre-release versions of Win 95 Those who had gotten copies of the "Gold Code" final version of the product reported that it was extremely stable and relatively bug free but with tens of millions of new users expected the demand for technical support for even a virtually bug free new product is going to be huge

Clegg stated that over the last year the issue of technical support for Windows 95 had occupied more of his time than any other issue related to the new operating system He also claimed that the extra time taken to refine the product had resulted in a very stable product and many of Windows 95's new features such as Plug and Play expanded online Help and the improved user interface will all tend to reduce the need for tech support Microsoft Canada has added considerable new tech support facilities and personnel and concluded an arrangement with Digital Equipment to borrow tech support resources and people if required Clegg said

Dealers hit their distributors for enough copies to keep consumers happy

Kamikaze Kritics

An odd moment in the press conference occurred when a large military style four engine plane buzzed the CN tower repeatedly in the middle of Clegg's speech passing within a few hundred feet and shaking the windows Some attendees speculated that disgruntled OS/2 Warp partisans might have been responsible

Midnight Madness

Microsoft made arrangements for Windows 95 to be available from retail locations at 12:01 am on Thursday Large numbers of Toronto PC buffs turned out at midnight at participating dealers locations so that they could be among the first to be able to claim bragging rights as a charter Windows 95 user Software distributor Beamscope opened its warehouse to smaller retailers at midnight as well and many showed up to collect stock for their shops opening at the usual time on Thursday morning

Participaction

At 9:00 AM on Thursday, and running through Friday and Saturday Microsoft opened a temporary fairground at the CN Tower site including a large circus tent packed with AST computers running Windows 95 and staffed with clowns jugglers face painters and other technical experts The first thousand visitors to the Microsoft site also had the opportunity to take in the regular CN Tower attractions (the Eco Deck, a great interactive ecology display the terrifying glass floor at the 1 100 foot level and various other high tech installations) at no charge

Thousands of ordinary Torontonians flocked to the site to enjoy Microsoft Win 95 birthday cake shoot a few hoops to win Raptors basketball tickets courtesy of AST and try out Windows 95 What was most impressive was the sight of Windows 95 running on dozens of AST desktop and notebook PCs showing dozens of 16 and 32 bit software applications operating flawlessly Symantec was the best represented third party software developer as it showed its new Norton Utilities Norton Anti Virus and Norton Navigator for Windows 95 titles A free AST computer was given away by draw each day

B G III TV

Bill Gates III was the star of a world wide satellite telecast at 2 pm Toronto time with surprise guest host Jay Leno of the Tonight

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Show Leno and Gates kidded around as they showed the key features of Windows 95 live In between prerecorded segments showing Fortune 500 supporters of the new operating system

Leno made a few salty remarks responding to Gates comments about Win 95 being painless and easy by quipping that Gates made Win 95 sound "like laser haemorrhoid surgery" Gates also said that Win 95 was so intuitive that "even a talk show host can use it " Leno made his exit in a Microsoft Mouse shaped golf cart "just the thing for going courtin'," he commented as he purred out of sight.

A notebook-toting mountaineer who rappelled down the world's highest free-standing structure as cameras panned down a monstrous Windows 95 banner

The highlight of the Toronto launch was the descent via rappeling rope by the daredevil Stuart Leggatt equipped with an AST notebook and a Nokia digital cellular phone. Midway through his descent, Leggatt paused to send a wireless data message using Windows 95 Upon reaching the ground safely he presented a copy of Windows 95 to Jennifer Himellarb of Newmarket Ontario one of the crowd of young people watching the stunt

Nokia representative John Whiteford commented to *TCP* that the telecom APIs in Windows 95 will be the catalyst for a vast expansion in data communications for PC users beginning in a few months (some major announcements on mobile wireless telecom are expected at the beginning of October For a run-down of the latest in modem technology for PCs see the *Computer Paper Labs Modem Survey* in this issue) Once the Tower descent was accomplished the party resumed with juggler and magician Johnny Toronto amazing his youthful audience with his sleight of hand.

The True Magic

Microsoft proved again with its launch of Windows 95 that it is the most brilliant marketing organization in the computer industry The launch-related hype was incredibly smooth, impossible to miss and the launch itself went flawlessly The question that remains is what about the product? Windows 95, at first look is a very good new PC operating system with many useful new features and has instantly become the major operating system in the personal computer field Microsoft seems poised to retain its dominance as the key supplier of personal computer software, while at the same time opening up a host of new opportunities for end users and third party developers alike ❑

Editor's note: In anticipation of the demand for info on Windows 95 Microsoft has established a plethora of online fax or voice telephone sources for information and help

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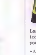

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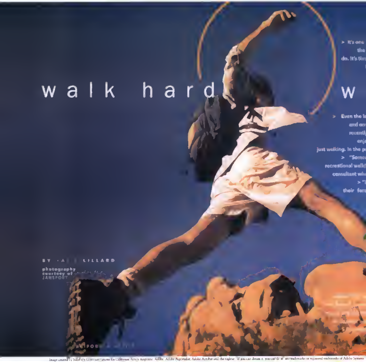

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eck on a Sunday afternoon and you're finally crossing the last item off
ekend's "to-do" list. Time to get physical, but the gym or a swim won't
get outside for a walk—not a stroll around the block, or a neon and
a power push. It's time for rugged walking.

alk tough

observant trend-watcher knows that outdoor activity is booming,
f the boomingest activities is the pedestrian style. But what's only
ing noticed is that a majority of the millions of Americans now
g active outdoor lifestyles aren't "doing" anything out there. They're
ss they're getting fit and enjoying the great outdoors.
re in the fitness boom and the outdoor recreation craze,
has slipped the notice of most media," says Robert Hoffman, a
orks on trail and river protection projects.
t people don't want to climb Kilamanjaro or strap walking
s, but they want to be outdoors after spending the
week stuck in an office or other indoor setting," says
rugged walk in the outdoors
steps on a treadmill
> What's

Mike Salisbury uses Adobe™ PageMaker™ to create designs so powerful they've become part of our collective consciousness. Layouts for Rolling Stone magazine, posters for Jurassic Park and Aliens, and Michael Jackson album covers bear his imprint. Now there's a radically new Adobe PageMaker 6.0 upgrade. "The interface is so natural, it never interferes with my ideas", says Salisbury, "and this new version is really over the top. I'm getting dead-on color from start to finish because it's locked into Kodak's Precision Color Management System." Hot new features include multiple master pages to streamline the creation of different page designs in a single publication; grouping and ungrouping to combine elements into a single movable, editable unit; integrated automatic trapping for color publications; and full compatibility with Adobe Acrobat™ and HTML so any document can be sent anywhere electronically. Adobe PageMaker 6.0 is here, so even if you're not creating professional design, this is the tool to give you professional looking results. Call 1-800-521-1976, Ext. KC272 for more information or visit our web site at http://www.adobe.com/.

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Microsoft Marketing Machine Rocks Canada

BY ROD LAMIRAND

American madness drifted across the border last month. Looking back now from the reality of our Canadian lair, it is tempting to blame it on the intoxication of all that media. Yet the uniquely American style of hoopla, orchestrated for the release of Windows 95, has set a new standard of fanfare and showmanship that will remain a benchmark for years to come.

When the richest man in the known universe releases the most anticipated software in history to the sounds of the most famous band in the world, people get excited. So excited in fact, that many of us lined up in the middle of the night just to be a part of the hype.

During the night, news stories of the impending release were broadcast and then re-broadcast. While we slept, Microsoft minions organized launch events all across the country. Like almost every other developed nation, Canada was under siege. Not only was Windows 95 released in 12 languages (Danish, Dutch, Finnish, French, German, Italian, Norwegian, Pan European (an English version with the capability to run Eastern European applications), Portuguese (Brazilian and Iberian), Spanish and Swedish), but spectacular events raised the media feeding frenzy to an unprecedented height.

In the US, fairs, computer stores and any venue with the bandwidth were taken over for the day for remote satellite link up to Microsoft's Redmond, Washington headquarters. Internationally, public relations events in Sydney, Paris and London brought Windows 95 as much publicity as the paid ads.

The publicity bash was not unexpected. "The international market is incredibly important to Microsoft," said Brad Silverberg, senior vice president of personal operating systems division at Microsoft. "We have put an enormous amount of time and effort into preparing for the launch of Windows 95."

Rather than merely placing an ad in *The Times* of London, Microsoft simply bought the whole run

Indeed they did. Rather than merely placing an ad in *The Times* of London, Microsoft simply bought the whole run, 1.5 million copies, gave it away free and inserted an advertising supplement for Windows to boot. In Australia, a barge towed a large four story high box festooned with Win95 logos into the Sydney harbor, while on the other side of the planet in Britain, huge fields were painted the blue and white Windows colors.

Here at home, two page advertisements appeared in most leading newspapers, adding to the page after page of retail ads piggybacking on the Microsoft juggernaut. In Toronto, the four day launch event was held at the base of the CN Tower. Product demos, prizes (Raptor tickets) and re-broadcasts of the Bill Gates/Jay Leno infomercial revolved around spurious demonstrations like that of a notebook toting mountaineer who rappelled down the world's highest free-standing structure as cameras panned down a monstrous Windows 95 banner.

At Imax Theatres in Vancouver, Calgary, Edmonton and Regina the adoring public were treated to the Gates and Leno Show on overly large screens, loudly answering the question "But why?" with the banal "Because we can!"

Francophone Quebecois were left out

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in the cold when Microsoft delayed releasing its French-Canadian version of Win95 to November 7 Quebec Premier Jacques Parizeau said he may discuss the matter with Microsoft. Watch for a mini-media blitz to hit Quebec next month

Television advertisements hit the prime time in a big way, informing that portion of the public living under a rock that it was time to "Start It Up" with a new operating system The 1981 Rolling Stones hit was leased from the band for a sum obtusely reported by the television media as falling between four and 12 million The sooty avant garde montage style of the commercials leaves little doubt that Microsoft paid top dollar to its ad makers

Media reports that over a billion dollars were spent on the launch may be true. If one takes into account the money spent by all the manufacturers and retailers pumping Win95 On the American talk show Larry King Live, Gates admitted that the amount Microsoft itself put into the release was closer to $200 million not exactly spare change

However if only 20 percent of the world's estimated 200 million PC owners were to pay the hundred bucks for the software a quick calculation shows that $2 billion would be generated in sales Add to this the huge number of buyers who will upgrade to Win95 compatible Microsoft applications and the undoubted hardware purchasing that will have to go along with it and perhaps all the kerfuffle is warranted

Does Microsoft expect to sell that many copies? Well, this excerpt from their press release is a hint "Microsoft has signed duplication and assembly agreements with five production companies throughout the country The agreements give Microsoft the ability to complete more than one million units of Windows 95 each week more than seven times Microsoft's internal capacity" ❑

Apple Parries Win 95 Launch With 'Truth' Campaign

BY RICHARD BOWERS

CUPERTINO CA (NB) — On the eve of the launch of Windows 95 Apple Computer Inc prepared to send a message to computer users worldwide, aiming to debunk the hype surrounding the launch of Microsoft's latest operating system The company unveiled a worldwide print ad that simply read "C \ONGRTLNS W95."

The campaign was developed by BBDO West, Apple's advertising agency for the past decade David Lubars BBDO West's executive creative director and president, said, "the word around Apple is that Windows 95 equals Mac 89 Windows 95 is an upgrade trying to catch up to last year's Mac. This year's Mac, the PowerMac 9500 is light years ahead, with full RISC (reduced instruction set computing) technology and much more sophisticated multimedia features.

"Microsoft is spending a lot of money to tell customers that Windows 95 can do Mac-like things Our strategy is to cut through the hype with engaging, creative advertising that reminds consumers that all the marketing dollars in the world do not replace superior technology" said Lubars

The C \ONGRTLNS W95 ad is part of a "Truth Campaign," which compares the new features — including the ability to type names of eight or more characters — to those found for more than a decade in Apple's Macintosh operating system.

"The tongue-in-cheek message "C \ONGRTLNS W95" is a reminder that although Windows 95 looks more friendly cryptic DOS-style commands and file names are still present behind the scenes and can emerge at the most unpredictable times" points out Lubars.

The C\ONGRTLNS W95 ad debuted August 24 in the American, European and Asian editions of the *Wall Street Journal* as well as in the *Seattle Times London Financial Times*, and *San Jose Mercury News*.

A week later Apple continued the campaign with more ads, the copy of which read "Looks like a duck. Walks like a duck. Quacks like a duck. Too bad it's a decoy" ❑

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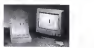
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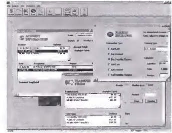
HOME BANKING COMES TO CANADA

BY ROD LAMIRAND



As I sat down to write this review of Home Banking (HB), I got my monthly phone bill in the mail. I opened the bill, walked back to my computer, and paid it

With one click of the icon a couple of pecks for my password and a click or two to indicate from which account, to whom and for how much and it was done I was back to work four minutes from the moment the bill hit the floor Finally something useful

The concept is simple A bank or credit union member uses software and hardware to access his or her account information, pay bills check mortgage and loan rates or transfer funds. Long available to businesses these services allow a customer to have 24 hour access to banking services as well as the convenience of avoiding a trip to the bank Nearly every single financial institution purports to be investigating the viability of this service.

However, there are currently only two Institutions with a Home Banking service that is up and running, or nearly so Taking the lead is British Columbia's VanCity Savings Credit Union, with a system that is out of the gate and actively enrolling members. Nationally Canada Trust is pursuing a pilot of their HB service in Burlington Ontario which concludes at Christmas Chuck Hounsell Assistant VP Distributing hopes to bring the service to Canada Trust members in early '96

The two systems are similar in as much as they both use a home PC and modem to connect to a company server However the two systems have been separately developed and have different designs VanCity Savings is also different in that it offers a television version

VancityDirectTV uses a set-top device with a modem and CD ROM to give the user a remote-controlled televison interface (The set-top device is in actuality a perfectly usable Commodore Amiga CD-ROM32 game machine) Vancity's PC version simply installs from two 3.5-inch disks to any 386DX or higher machine with 4 MB RAM running Windows 3.x or higher with a modem and phone line As the Canada Trust version is still in beta and unavailable, this assessment of HB is based on VancityDirectTV and VancityDirectPC only

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- **Exploring The Microsoft Network**
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- **CompuServe Welcomes Win 95**

Basic Interface

When a user signs onto VancityDirect she/he finds a well crafted GUI that is mouse operated on the PC and remote control operated on the TV The menus are ostensibly the same (Account Payment Funds Exchange Rates, Branch) although the PC version is more agile because of the mouse The set top version for the television has more menu layering because of the limited abilities of a

Continued on page 20

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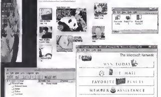
To Microsoft Network or Not To Microsoft Network

Let's say you have upgraded to Windows 95 already have a modem and are now wondering about the Microsoft Network (MSN) Sitting there on your desktop waiting quietly the MSN icon stares patiently at you Eventually you will click it Click on it once and hit delete It won't disappear. Click on it twice and you have started down the road to Microsurfing Amidst controversy over the fairness of bundling commercial access software with its operating system Microsoft has launched its online service and thousands are signing up

You Click It

The registration procedure can be initiated from the Win95 Desktop from an MSN icon that is automatically placed there upon installation of Windows 95

If you do decide to double click that icon here is what will happen Registration begins with a software search of the first three digits of your phone number In conjunction with your area code the system attempts to choose the appropriate local telephone number If unable the program will list an 800 number that upon connect will allow the user to select the phone number closest to his or her location



As of the network's launch on August 24 MSN was available in 30 major cities across Canada with Microsoft claiming it will add more sites before Christmas Once the closest access number has been chosen the registration process will alert the user to the need for a credit card to continue The software then contacts the Microsoft Network system and records the user's name telephone number credit card number (for validation I would suspect) and other optional information

The program will ask you if it can search your system files for information about which programs you use This controversial procedure is optional Microsoft wants this information to be able to target you with highly individualized marketing (Critics have imputed a variety of motives behind this procedure from a way of tracking down users of illegal or bootleg software to a method of seeing how many competitors products are being used and by whom — Ed)

Microsoft offers a 30 day or ten hour trial period (whichever comes first), after which time you are expected to choose one of three plans.

Continued on page **22**

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The complete picture

Home Banking

Continued from page **18**

remote control device which acts much like the tab key on a keyboard. Still, the interfaces are good looking and clear

The procedure for signing on is simply the process of entering the account number the branch number (both of which are on all bank statements) and a password. This code number is the same one that many members will already have if they use VanCity's telephone banking service As a matter of fact the services provided by HB simply repackage the same services offered by the telebanking services that most banks and credit unions already have

So what is the value of the service? The answer is the visual interface Telebanking services are good enough if a member simply needs an account balance or wants to know the current loan rate on a particular length of mortgage

If, however, a person wants to see all the transactions in a given period or see all the mortgage rates for six months to 10 years then it is much easier to look down a list of 15 or 20 entries rather than having to listen to a monotonous computer-generated voice reading item by item

Another great aspect to the system is that, if you want to pay a bill, you can choose from a list of companies rather than having to have previously signed up each merchant (As of September, VanCity has 84 businesses that can be paid by their 4,000 on-line customers) Up-to-the-second exchange rates with the option to purchase foreign dollars at any moment plus current mortgage and loan rates give good value to the service.

Rounding out the system is product information branch locations and hours, and other general financial institution information Of course statements can be saved or printed Information can be retrieved for up to six months past and exported to financial management software if desired.

VancityDirect has the same costs as telebanking which, for those of you that still actually go into a bank, is about the same as every credit union/bank's transaction fees There is an annual software license of $12 which has been waived until 1996 Vancity DirectTV has the additional charge of six or seven dollars a month for the use of the set top machine.

VanCity, in British Columbia and soon Canada Trust across the country, are set to bring banking into your home Ultimately, the usefulness of this depends of your lifestyle If you keep track of your accounts on computer and/or if you need to get your banking done quickly and easily then Home Banking is probably for you. ❑

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Notebook Features	PVT-Lite	AM-LITE	PENTIUM PVT/M
CPU Type & Landmark Speed	SX 33 ? MHz DX/2-66 220 MHz DX4/-100 330 MHz	DX / 66 220 MHz DX4/-100 330 MHz	P 75 400 MHz P-90 >400 MHz P-100 420 MHz
Unique CPU Upg ability	SX-33 to DX4/100	SX-33 to DX4/100	DX-75 to DX 100
Base/Max RAM	4/20 mb	4/20 mb	8/40 mb
Local Bus Video RAM	512k	1 mb	1 mb
Max. HDD Capacity	1.3 GB	1.3 GB	1.3 GB
Internal Floppy	1.44 hi-density	1.44 removable	1.44 hi-density
Screen Size	10"	11.3"	10.8"
Max. External Resolution	1024 x 768 16 colours	1024 x 768 256 colours	1024 x 768 256 colours
Int. Screen Resolution	640 x 480	640 x 480	640 x 480
Ext. SVGA Monitor	Simultaneous	Simultaneous	Simultaneous
1 serial, 1 parallel, ext. video, 2 PCMCIA slots	high speed parallel high speed serial	high speed parallel high speed serial	Yes
Battery Type	NiMH	NiMH	NiMH
Built-in Pointing Device	integrated trackpoint	integrated trackpoint	25 mm trackball
Docking Chassis	No	Yes	Yes
Removable HDD	detachable	standard	standard
VESA Local Bus HDD	Yes	Yes	Yes
sound/speaker/mike	16-bit built-in	16 bit built-in	16 bit built-in
Dimensions (inches)	11.2 x 9.8 x 1.85	11.7 x 9.9 x 1.65	11.3 x 10 x 2.4
Weight (incl. battery)	5.2 lb	5.8 lb	6.2 lb
Battery Life 2-4 hours	Yes	up to 6 hours with 2nd battery pack	Yes
SVGA, PCMCIA Drivers	included	included	included
Carry Case, AC adapter	included	included	included

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Am-Lite Notebooks (4 mb RAM dual scan colour)				
Hard Drive	340 mb	520 mb	810 mb	1.3 gb
AM486DX/2-66 Intel™	$2818	$2935	$3117	$3351
AM486DX/4-100 Intel™	$2896	$3012	$3195	$3429
PVT-Lite Notebooks (4 mb 10" mono LCD w/o battery doubling)				
Hard Drive	120 mb	340 mb	520 mb	810 mb
PVT-L 486SX-33	$1775	$1881	$2074	$2308
PVT-L 486DX/2-66	$1781	$1897	$2080	$2314
PVT-L 486DX/4 100	$1849	$1965	$2147	$2381

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ATI Mach64 VLB 2 mb DRAM (OEM)	$172
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ATI Mach64 2 mb DRAM (OEM)	$172
ATI Mach64 2 mb VRAM (OEM)	$298

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Colorado DJ25 700 mb tape backup	$298
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Canon BJC-4000 bubble jet printer	$499
Reveal KQ40 MM kit	$478
Reveal KQ36 MM kit	$489
Creative Labs Value CD 4X kit	$369
Creative Labs Discovery 4 x6 MM kit	$479
Creative Labs MM Home 4 x6 kit	$580

Ultinet's PVT/M IDX-66 Notebook & DX-66 Midtower were rated by The Computer Paper

ULTINET MIDTOWER SYSTEM SPECIFICATIONS

	With 486 CPU	W/Pentium® processor
CPU Options	DX/2-66 DX/4-100	DX-60/66 DX 75/90/100/120/133
Motherboard BIOS/Chipset Cache	3 VESA, 7 ISA slots AMI BIOS UMC/SIS 128K exp to 256k 20ns	4 PCI 4 ISA slots Award BIOS UMC/SIS 256K exp to 512k, 15ns
Hard Disk Drive HDD controller Transfer mode	<12 ms VLB 12mb Mb/s transfer enhanced IDE M2	<12 ms PCI dual channel on dual enhanced IDE M4
Floppy Drive	1.44 mb hi-density	1.44 mb hi-density
Low rad/energy mtr Video card	14 or 15" .28dp SVGA 1 mb 32-bit SVGA VLB	14 or 15" .28dp SVGA 1 mb 32-bit SVGA PCI
Enhanced keyboard	101-key, spillproof	101-key spillproof
Mouse	3-button 400 dpi	3-button, 400 dpi
Case Power supply	enh. digital midtower 250 watt	enh. digital midtower 250 watt
Serial Ports Parallel Ports	2 serial 1 parallel	2 serial 1 parallel

MIDTOWER SYSTEM UPGRADES

Upgrade regular chipset motherboard to Ultinet's-Triton mb	$43
Upgrade 486 VLB with 128k cache to PCI Version	$75
Upgrade 4 to 8/16/32 mb RAM on 486	$182/495/1186
Upg. 4 to 8/16/32 mb RAM on P-60/66/75/90/100/120	$183/545/1148
Upgrade 540 mb IDE Enh HDD to 850 mb/1 1 GB	$55/$118
Upg 540 mb HDD to 1 GB/2 GB/4 GB SCSI HDD	$270/$790/1278
Upgrade to fast I/O for 486 (2 x 16550 serial 1 EPP 1 game port)	$28
PC-DOS/MS DOS 6.22 full package & disks (OEM)	$28/59
Windows 3.1 \ Windows 3.11 with workgroups (OEM) \ Win 95 Upgrade	$55/89/135

486VLB & PENTIUM PCI MBD's & PARTS FOR OLD SYSTEMS

60/66 MHz, 256k cache Acer chip set	$115
75/90/100 MHz 256k, SIS/Acer chips built-in enh IDE multi I/O	$233
75-133 MHz, Triton chipset mbd, fast I/O enh. IDE the best	**$223**
Intel 486DX2/66 cpu/ Intel 486DX4/100 cpu	$158/$221
60/66 MHz Pentium® processor	$210/$367 (Call for price updates)
75/90 MHz Pentium® processor	$252/$369 (Call for price updates)
100/120/133 MHz Pentium®	$527/$766/$887 (Call for price updates)
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Multi I/O (2 x 16550 serial ports)	$119

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IDX 60	$1746	$61/mth
IDX-66	$1827	$66/mth
IDX 75	$1915	$69/mth
IDX 90	$2065	$75/mth
IDX 100	$2215	$81/mth
IDX 120	$2461	$91/mth
IDX-133	$2661	$99/mth

Add $295 for 14" SVGA .28dp monitor
Add $435 for 15" UVGA .28dp monitor

MID-LEVEL PACKAGE
8 mb RAM 850 HDD
15" .28dp NI monitor
Quad-speed CD-ROM
2 speakers, 2 CD titles 16-bit sound card

I486DX/2 66	$1786	$71/mth
I486DX/4-100	$1841	$74/mth
Systems below with Pentium® processor		
IDX 60	$1842	$74/mth
IDX-66	$1962	$79/mth
IDX 75	$2044	$82/mth
IDX 90	$2181	$88/mth
IDX 100	$2341	$94/mth
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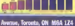

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I486DX/2-66	$2270	$91/mth
I486DX/4-100	$2325	$93/mth
Systems below with Pentium ® processor		
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IDX-66	$2425	$97/mth
IDX 75	$2527	$101/mth
IDX 90	$2675	$107/mth
IDX 100	$2825	$113/mth
IDX 120	$3067	$123/mth
IDX 133	$3285	$131/mth

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Quad-Speed CD-ROM
16-bit sound card 2 speakers, 2 CD titles

486DX/2-66	$2863	$115/mth
486DX/4-100	$2918	$117/mth
Systems below with Pentium® processor		
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IDX-66	$2991	$120/mth
IDX 75	$3121	$125/mth
IDX 90	$3286	$131/mth
IDX 100	$3418	$137/mth
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The Microsoft Network

*Continued from page **20***

But The Cost

Canadian pricing is as follows. The Annual Plan is $70 for the year and includes three hours usage per month. If you use more time, it is rated at $3.50 per hour in 30 second increments.

The Frequent User Monthly Plan is $35 per month and includes 20 hours of usage per month with each additional hour costing $2.80.

The Standard Monthly Plan is $6.95 per month which includes three hours of usage per month, each additional hour is $3.50.

There is also a limited time offer for the first half million MSN members: $56 per year and then the same conditions as the Annual Plan.

What do you get for your money? Microsoft Network offers a wide range of content including forums, chat groups, news, weather, e-mail and access to numerous types of data. Like CompuServe, Prodigy and America Online, Microsoft Network is a value added content provider but is not specifically an Internet access provider. It will be possible to access the Internet from within the service (Microsoft claims it will have such access in most cities in Canada by Christmas), but this is not the goal of the network.

In a price-only comparison between the major online services, Microsoft Network stacks up quite well. Every major service has some introductory offer which usually means the first month's fee is waived, as are the first few hourly charges. Ignoring the various seductions and focusing on the regular fees can give you an idea of the general costs associated with an online service. Also, some of the services have heavy usage pricing plans but for a quick comparison, let us take a look at their standard plans.

Prodigy, which has only 9600 modems in Canada, has a Basic Plan which is US$9.95 per month for five hours and US$2.95 thereafter. Genie is C$10.95 per month for four hours, then C$4.00 thereafter. America On Line (AOL) is US$9.95 for five hours, thereafter C$2.95; however, there is a 20 cents a minute surcharge at all times on all Canadian calls. CompuServe costs US$9.95 per month for five hours, thereafter US$2.95. The best pricing is dependent on your needs, your usage and which type of plan you subscribe to.

Solely on a price level, your total cost will average out to be surprisingly similar because, where the monthly cost is down, the hours may be less or the extra connect charges may be more. Further complicating matters is the fact that some services like Prodigy have plans that allow unlimited access to "Core" features with limited access to "Plus" features.

The Hardware

If you don't have a 486 with 8 MB of RAM and at least a 14.4 modem, then wait. If you don't, you will become so frustrated waiting for the Microsoft Network graphics to download while the meter you are paying for is ticking, that your heart will implode and you won't have the experience that Microsoft is hoping for.

On my 486DX 100 with 8 MB RAM, it is just livable — just. In this case, the modem ads are right when they tell you that a 28.8 modem will pay for itself by saving you connect time (the Microsoft Network access numbers I called are all 28.8).

The Experience

Microsoft Network has a beautiful interface. It is hard to complain about the excellent graphics and logical menuing of the service. There are five categories at start up: MSN Today, e-mail, Favorite Places, Member Assistance and Categories. Any one area is vast in itself; for example, MSN Today is an opening screen which gives the customer information about what is happening that day.

Also interesting are events such as topic specific chats, where any number of people interested in a certain area get together at a particular time to have a conversation. Quick reading and good typing skills come in handy in chats. Also found here are Calendar of Events (a longer term look at upcoming events), MSN Life (an online magazine), MSN Spectrum (a meeting place for cultural information), SOHO (a specialty area for home office/small office workers), Home & Family, MSN Computing and MSN News. Also here are shortcuts to texts, announcements, event times, Guidebooks (a collection

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of resources for a particular subject) and other areas of the network.

The second category, e-mail, is what one would expect with internal and external (Internet) mailing possible. It is also possible to send attachments which are automatically coded and unencoded at the Microsoft end (UUENCODING).

Favorite Places is simply a place to drag icons, the result being to create shortcuts to parts of the network. You can also accomplish this by dragging locations within Microsoft Network to your desktop on your home machine. Clicking the resultant icon will start the service and take you to that location.

Member Assistance is a large category within which there is help, billing information, personal bio info, tutorials, texts and help files, downloadable utilities and a tech chat.

The most interesting area, and the largest, is called Categories. Here there are dozens of different areas from Arts and Entertainment, Business and Finance, Education and Reference, to People and Communities, Sports and Recreation, and Chat World. Any of the 15 icons in this group has several sub-areas. Many of these have services offered by companies hoping to provide you with a valuable service (at an additional cost, in some cases). Up to the minute satellite shots of the planet, sports scores, direct feed off the news-wires, financial data, access to recipes, reviews and research, an encyclopedia and reference books, all these and more are here.

➤

MSN Under Observation Says EC

NB — Microsoft's launch of Windows 95 went ahead unimpeded in the US, but the European Commissioner's (EC's) office in Brussels has warned the software giant that, as well as the Department of Justice's office in the US, it too is watching Microsoft's activities very closely.

Unlike the US Government, the EC has not revealed its plans over Windows 95, and in particular whether Microsoft Network (MSN) may violate the anti-monopoly laws in Europe. Since the EC announced it was looking closely at Microsoft's activities surrounding Windows 95 earlier this year, Microsoft has revealed that the European version of MSN will cost significantly more than in the US, and will not include Internet facilities until early on next year.

The EC announced in June of this year that it was investigating Microsoft's activities as to whether the software giant's actions had infringed on the EC's anti-monopoly legislation — specifically whether Microsoft has abused its position as a major supplier in the market with MSN.

EC officials point out that the US Justice Department is still continuing its investigation into MSN, although no action was planned against Microsoft before the launch of Windows 95. ❑

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YOUR PATH OF LEAST RESISTANCE TO THE INTERNET

How Big Is The Internet?

BY KENNEDY MAIZE

NB — Just how big is the Internet? Two of the Internet measurement experts are teaming up to try to answer that elusive question Mark Lottor of Network Wizards has released the latest results from his domain survey which attempts to discover every announced host on the Internet by doing a complete search of the Domain Name System The results are published on the World Wide Web at http://www.nw.com

Lottor's survey for the end of July found 6 642 million hosts with 120 000 domains, up from 4 852 million hosts on 71 000 domains in January 1995 In January 1993, Lottor found 1.313 million hosts and 21,000 domains.

A "host" is a computer that is connected and directly reachable as part of the Internet via a unique address It does not include computers that are part of other networks that are peripheral to the Internet such as online services Bitnet, or Fidonet.

What does Lottor conclude from the latest survey? "WWW is now by far the most popular host name" he says adding, "Still no one has any clue how many users there are"

John Quarterman of Texas Internet Consulting in Austin, Texas another leader in trying to estimate the size of the Internet, has looked in depth at the three letter global domains providing what the Internet Society says is "an entirely new perspective on how the Internet's com net .org edu and int global domains are now being used worldwide His work is published at http://www tic com

Tony Rutkowski executive director of the Internet Society says some of the highlights of the Lottor and Quarterman work include

- Continuing at the average rate of increase over the past 14 quarters the total predicted number of hosts by the end of the decade is 101 million.
- There are com domains in 54 countries net domains in 57 countries org domains in 27 countries including most of the United Nations agencies and edu domains in 16 countries
- The global commercial domain com continues to be not only the largest but also the most rapidly growing domain
- Russian growth is strong at 68 percent for the first six months of 1995
- Germany and Japan appear to be growing at about 40 percent for the first six months of 1995 and the US at 24 percent. ❏

Exploring MSN

Continued from page **23**

The Verdict

Microsoft has built an easy to-use visually pleasing value added network It is not an Internet service provider as such and would be an expensive way to spend much time visiting Web sites.

Microsoft has put some effort into creating Canadian content with over 200 companies and 100 content experts included (online specialists that Microsoft Network lines up for you to chat with and ask questions of) There are Canadian content providers like The Discovery Channel the National Hockey League Delrina and The Megellan Group (Victoria-based JCF Technologies Inc and Calgary-based Magellan Interactive Multimedia Inc are two companies currently working on providing content in the form of job seeking services and CD-ROM retailing respectively) The service remains however primarily an American experience

In a content comparison of the major services, it is extremely difficult to say who has better content. Each service tries to perform a balancing act between offering unique content and keeping up with customer expectations. When one service went graphical shortly thereafter they all did Now that CompuServe is going to 28 8 modems (May 1996) they all will

From the perspective of both Canadian content and sheer size CompuServe is clearly the leader Michelle Moran spokesperson for CompuServe points out that they have over 100 000 Canadian customers with both an English and French interface

As well, with 16 years experience online, she contends that CompuServe has more breadth and depth then any other service in the world. "If you asked me why Canadians should come to CompuServe rather than the Microsoft Network, I d have to say ..because we're there We re already here, we have the content today"

Details about number of nodes access lines and amount of content that is relevant to Canadians makes choosing one over the other very difficult and mostly a matter of preference

Overall I have to say the Microsoft Network is rich and deep Is it time to try it out? Not yet In anticipation of strong demand MSN has a plan they call the Assured Customer Satisfaction Plan This translates to a policy which sees the Microsoft Network grow to a membership of 500 000 and then temporarily close new member enrollment (CompuServe has over three million users) This is good business and will give the system time to be fine tuned

However, it also indicates that there may be an expectation of some hurdles to overcome Since Microsoft does not yet have Internet access up and running for Canadians and because the expected competition likely to ensue between the Microsoft Network and other services will possibly create a price war this reviewer suggests you let that Microsoft Network icon sit on your desktop quietly resting

If you have a fast powerful system and can't wait for any growing pains to be ironed out sign up today If on the other hand, you want to be prudent then surf the Net with a local Internet provider get a bit of experience of exactly what's out there and then after Christmas perhaps give the Microsoft Network a chance You'll probably be hooked. I am <g> ❏

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Calcomp Inkjet Plotters	Call
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Kodak Colour Ease PS	Call

NETWORK

Intel Network Products	Call
3Com Network Products	Call
Microdyne Net Products	Call
Lantastic Net Products	Call
D-Link Ethernet Products	Call
NOVELL 3.12v 5-25 User	Call
NOVELL 3.12v 50-100 User	Call
NOVELL 3.12v 250 user	Call
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NOVELL 4.1v 50-100 User	Call
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VIDEO

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ATI Xpression64 2MB PCI	Call
ATI Turbo64 2MB VLB/PCI	Call
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Diamond Stealth 64 2mb	Call
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Matrox Millennium 64 2MB	Call
Matrox Millenium 64 4MB	Call
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Matrox 4MB Upgrade (M.I.)	Call

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Toshiba T4800CT 8/320	Call
Toshiba T4850CT 8/500	Call
Toshiba T4850CT 16/810	Call
Toshiba T4900CT 8/772	Call
Toshiba T4900CT 16/810	Call
NEC Versa DX4/75 8/340	Call
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Creative Blaster Voice 19.2	189
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US-Robotic PCMCIA 28.8	329
US-Robot 28.8 F/M V.34 I	259
US-Robot 28.8 F/M V.34 E	289
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Microtek Scanmaker IISPX	Call
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CompuServe Welcomes Win 95, Objects to MSN Bundling

BY PATRICK MCKENNA

COLUMBUS OH (NB) — CompuServe has issued a press release welcoming Microsoft's new operating system Windows 95 but continues to state its objection to Microsoft's bundling Microsoft Network with Windows 95 The oldest major online service is also building a new interface which supports Windows 95's 32-bit environment

In an official press release CompuServe's new chief executive officer Robert Massey is quoted as saying "Windows 95 with its easy to use features and outstanding user interface represents a milestone in the personal computing industry By making a product that is easy to use and understand Microsoft will open up the computer to millions who never before thought they could use a computer In addition the awareness of going online that Microsoft has created with the launch of its Microsoft Network will benefit everyone in the online industry"

In his objection Massey said "While we are pleased that Windows 95 has finally arrived on the scene we continue to oppose the bundling of Microsoft Network in the Windows 95 application By attempting to leverage its control in the operating system market to dominate the online industry Microsoft is casting a cloud over the future of cyberspace However we know that the Department of Justice is aggressively pursuing its antitrust investigation and we are confident that when Justice is ready to announce its findings the case will be air tight"

CompuServe's support of the new Microsoft operating system is evident in the creation of numerous online areas which offer support to Windows 95 users Along with the different areas CompuServe announced Mosaic In A Box for Windows 95 an Internet product especially adapted to the Windows 95 environment

In further support of Windows 95 CompuServe plans to introduce a new version of its CompuServe Information Manager (CIM) Before the 32 bit CIM is delivered CompuServe will deliver CIM 2 0

Jeff Shafer, a spokesperson for CompuServe said CIM 2 0 "has the same interface but will be easier to use and have a built in browser"

Version 2 0 will be followed near the end of the year by CIM 3 0 which will support 16 bit and 32 bit applications Said Shafer "3 0 will provide Windows 95 users with 32 bit support while its 16 bit support will allow it to work with older versions of Windows It will have an entirely new interface and is our next generation look It is being built to be more fun and exciting than anything we have done before"

CompuServe recently announced plans to introduce an entirely new service for novice users called WOW! The online company says WOW! is designed to compete with radio and television Shafer said WOW is different from CIM much like *USA Today* is different from *The New York Times*"

In other news Spyglass Inc is extending its licensing agreement to all of CompuServe after the online service acquired Spry earlier this year Under the agreement CompuServe will have access to the same Spyglass technology Spry had previously licensed

Terms of the agreement were not disclosed but Randy Pitzer Spyglass spokesperson called the agreement "expansive"

The technology is now present in CompuServe's NetLauncher which contains the means to explore the Internet's World Wide Web via Spyglass's Enhanced Mosaic Web browser.

Spry, which became CompuServe's Internet Division after the acquisition also licenses Spyglass's Web browser technology through the division's Internet Office Internet In A Box, and Mosaic In A Box products ❑

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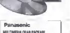

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Epson's FaxPort PC Card modem uses a retractable phone line connector designed by MegaHertz Corporation. MegaHertz calls the connector an XJack, while Epson's name for it is FaxPort

Faster and faster and faster

28.8 Kbps Modems Become The Mainstream

BY CHRIS FISHER AND JEFF EVANS

ATA – The squeal of handshaking modems is music to our ears this month as *The Computer Paper* Test Lab kicks the tires on a whole lot of PC communications devices. We tested 30+ modems, and found that there have been huge changes in the product lineups and price/performance in the modem field in the few months since our last modem survey. Briefly, 28.8 Kbps is in, 14.4 Kbps is out, and super high speed ISDN is on the horizon

Farewell To All That

The 9600 bps modem, which we remember vainly lusting after when it first appeared on the market with an $800+ price tag not so long ago, has all but disappeared. Check the remainder bins if you still want one, for $60 or less. 2400 bps modems are now finding their way to the big circuit board in the sky. We won't even mention the fate of 1200 bps and 300 bps acoustic coupler modems.

The modem market in late 1995 seems to be divided into three tiers:

• The Bottom. Today's low end for desktop PC modem users is represented by 14,400 bps Fax modems. This "new" low end is a boon to first time modem buyers, as a 14,400 bps fax modem can be had for as little as $75 retail, with most in the $100 range. If you were to flick through an old *Computer Paper*, you would see that these same modems were top of the line and cost $250-$300 just two short years ago.

For notebook computer users, 14,400 bps PC Card modems will be the norm for a little while longer, as faster models are still quite expensive. In practical terms, since many on-line services have not completely switched to 14,400 bps service, a 14k modem is still an eminently usable bargain, for the time being.

• The Middle. The midrange modem market consists of 28,800 bps internal and external modems. The sales of these currently state-of-the-art offerings are being pushed by the ever-increasing use of the Internet and through new and ever more aggressive marketing efforts from online services. The World Wide Web has fueled the hunger for ever faster modem speeds.

Modems from left to right: Aceex Pocket Fax Modem, E-Z Office 14.4, Best Data Smart 2834FX, Reveal Sound Expression, Epson EFM144C, and U.S. Robotics Sportster 28.8

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Prices in this category are decreasing steadily Many buyers figure that even if they can t always use the 28 800 speed capability it offers more long term usability as higher speed services become more common

• The Top The top end of the modem market consists of ISDN devices and some 28,800 bps modems that use aggressive 8x compression techniques to up the throughput ante to a potential 230 400 bps As well high speed PC Card modems and modem/network combo cards for notebook users typically are still quite expensive These are specifically marketed to the business community and typically start at several hundred dollars more than the average 28 800 bps modem

PCMCIA = PC Card = Mobile Telecom

In addition to the traditional internal and external modem products, the credit card style plug in modems intended for notebook computers have really taken off in the last year Originally termed PCMCIA cards these devices have been renamed "PC Cards"

Early leaders in the PC Card market such as Xircom Ositech and Megahertz, have been joined by a host of other PC Card makers such as PIICEON Epson and Best Data Prices of PC card modems have also declined radically in the last year though they are still somewhat more expensive than comparable internal or external models Vendors of notebooks report that there is now almost a one to-one correspondence between sales of notebook computers and PC Card modems — they have become a standard feature for the mobile computer user Curiously only the Apple PowerBook line, a technology leader in most respects has not made wide use of the PC Card technology, though this may change by 1996

Apples and Apples The Difficulty Of Differentiating

One thing you ll notice if you carefully study the product comparison table accompanying this article is that there is not a lot of differentiation in the communication feature sets of most modems in their respective classes Current modems are all very feature-rich

Not so long ago buying fax capabilities with a modem was an option for which you paid a premium Today a fast Group III class fax device is a standard feature of virtually every modem

We are starting to see PCMCIA modems that come with both Ethernet and fax modems Will standard networking functionality be the next step in the snowball of integration? No demand in the home market you say? Not all that long ago people didn t really think they needed fax capability at home but when it became inexpensive and pervasive many people adopted it Market forces will decide

Hands On

As opposed to our previous survey which was essentially a buyers guide, this Lab report is based on hands on testing Somewhat to our surprise compared to previous generations of modems the current generation are almost universally simple to install and reliable to use Most of the modems arrived with free trials to various on line services such as CompuServe, America Online and Prodigy

However as most computer enthusiasts and casual users alike by now have drawers full of these trial offer floppies, these "bonuses" are not discussed here We tested the installation routines of the internal and external modems on a Pentium 90 PC running Windows 95

The PC Card modems were tested on a variety of brand name laptops including an AST Ascentia 810N a Toshiba 3400C an NEC Versa and an IBM ThinkPad 755 CD, running Windows 3.x or Warp We found that the standard level of PC Card support software is much improved over its state a couple of years ago

The Contenders

We asked manufacturers to send us their latest products with emphasis on 28.8 modems We offered to review 14 400 bps modems provided that they had some added functionality like voice mail or sound capabilities So, without further ado let's view the state of the modem art.

Aceex Pocket Fax Modem

Aceex has a full line of modems from 9 600 bps up to 28 800 bps in internal external external pocket sized and PC Card (PCMCIA) formats. We can honestly say that the 14 400

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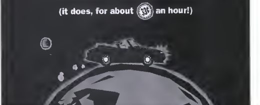

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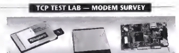

pocket modem that we received was cute. This small external unit is designed for those who have an older laptop without a PCMCIA slot (an often forgotten category of computer user). While obviously not as convenient as a PC Card modem, it is well featured with 14 400 bps throughput and Group III fax capabilities. The Aceex pocket modem packs all you need into just a few square inches. Despite its small size, the pocket modem retains the most meaningful status lights on the front. This little black beauty can be powered via the supplied adapter or with a standard 9V DC battery. The battery option gives it true portability and the low battery indicator allows a small window of opportunity for the mobile user to finish his or her transaction.

The Aceex desktop internal and external 2814 models are standard configured 28 800 bps fax modems. The external modem is sturdily constructed and has a bright and well laid out display. Unfortunately the modem arrived missing one of its little rubber feet which left it a little rocky on the desk. This would be a little annoying to most consumers. The external model is not shipped with the required serial cable. All in all, the Aceex line of modems are a competitively priced solution to your modem blues.

Angia SafeJack 28 8 PCMCIA

Editor's CHOICE

Best PC Card Modem If you have a top-of-the-line laptop, the Angia SafeJack 28 8 would be icing on the cake. It's a first rate product. We saw several 28 800 bps PCMCIA modems in this lineup that come with a pop-out connector, generally all variations on Megahertz's XJack. Angia's PCMCIA modem connector is designed differently. The adapter is separate from the card and less likely to be damaged than the standard pop out type. Another unique feature of the SafeJack is its dual line jacks. Like regular internal and external modem, the Angia allows a regular phone line to be passed through the modem connection. (We've used an Angia SafeJack as our main laptop modem for several months now and have found it to be a reliable and rugged performer. — Ed)

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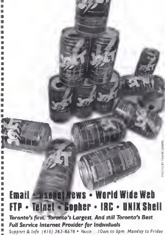

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LaveFE ISA FD HD 2 16550 1P	$[illegible]
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NETWORK

Megahertz Ethernet BNC/RJ45	$ 49.95
GVC Ethernet BNC/RJ45	$ 72.95
Surecom PCI Ethernet BNC/RJ45	$[illegible]
Lantastic/GVC E Net Starter	$[illegible]

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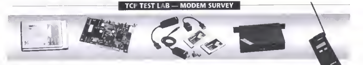

Modems from left to right Megahertz 28 8 GVC 28 8 SupraExpress Apex Data Multicard Creative Labs Modem Blaster Xircom CreditCard Ethernet and Modem 28 8 Zoltrix 28 8, and Molatex

package the Apex Data MultiCard card is ideal for those who want to stay connected to the network between offices or at home or at work. This card comes standard with a 10 base T adapter but has an optional 10 base 2 adapter Even though the MultiCard fax modem component is only rated at 14 400 bps the Ethernet connectivity makes it attractive for professionals on the move.

The MultiCard was instantly recognized by Windows 95 but you will still need to do some playing after your plugging to get the networking component of the MultiCard running Apex also sent along a 28 800 bps PCMCIA fax modem complete with MNP 10 error correction for better cellular communications

Best Data Smart One 14,400 Internal and 2834FX External

We were a little disappointed that the external modem did not come with a serial adapter (a pet peeve of ours — lack of it means the modem buyer often has to hike back to the store where he or she got the modem and spend more time and money before getting hooked up) Aside from this quibble the products were well featured worked reliably and are a decent entry level option

Boca SoundExpression 14.4VSp Boca 28.8

Is this really a modem? The SoundExpression has so many features and capabilities that it seems unfair to label it just a modem The SoundExpression is several things including a 16 bit sound card a speaker phone a voice mail system and a 14 400 modem and fax device The card also includes an interface for popular CD ROM drives One disadvantage of having all these features on a single card is that when one of the functions becomes obsolete you may end up replacing the whole card

For example, when 14 400 bps becomes too slow for Web browsing or if standards for CD ROM drives take a turn you may need to get rid of the integrated device in order to accommodate your new acquisition However aside from that the technology is very impressive and the product is a good value This is the second time the *Computer Paper* Test Lab has looked at this particular product For a detailed review you may want to refer to the March 1995 issue of *The Computer Paper*

The Boca 28 800 external modem we reviewed compares favorably against the other external models in the lineup The modem is housed in a sturdy black metal case and comes complete with a serial cable with dual adapters that allows the Boca to utilize a 9 or 25 pin serial port on the back of the computer A serial cable is an essential piece of equipment for the operation of an external modem and kudos to Boca for including one Not every other vendor does Software setup and data and faxing all went smoothly with this package In terms of engineering innovation software integration and ease of use Boca is a class act

➤

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Creative Labs Modem Blaster 28.8

Creative Labs known for their industry standard sound cards shipped us a 28,800 modem with a little bit of a twist Only the fun loving folks at Creative would think of packing a CD ROM full of modem capable games with their 28 800 bps modem offering Included on the CD are 15 levels of Descent, Doom Episode I Heretic Episode 1 and WarCraft Special Edition If you are looking for quiet interactive and educational games to play over the Modem Blaster you are out of luck Creative's bundled games add value through sheer anarchy

Creative has also bundled Chameleon Internet Tools with their product. This will give the uninitiated a good start at surfing the Web at least until one becomes adept enough to discover that the real powerhouse Internet applications such as Netscape are shareware or freeware Still the Modem Blaster is a high quality package and possibly the best choice for the first time buyer

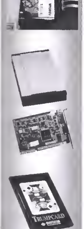
E Z Office

The E Z Office package is billed as the all-in-one home office automation solution It certainly does have a large feature set voice mail system automated attendant fax on demand remote message retrieval and auto-detection of incoming voice data and fax calls E Z Office also comes with a unique little black box that when hooked between a Group III capable fax machine and a modem allows the fax machine to be used as a full page scanner This product has potential however, a word of caution EZ-Office with all its functionality came with less documentation than any of the other modems reviewed

Epson EFM144C, EMF144FP, EMF144

Epson is a company that one usually associates with printers Epson would like you to know that they also have a whole line of PC Card devices for your computing enjoyment The three modems Epson sent us were 14 400 bps modems with varying degrees of capabilities. The bottom of the Epson line is a generic fax modem Nothing fancy but nevertheless a capable modem The midrange Epson adds MNP 10 error correction for mobile and poor connections The

➤



Editor s Choice Winners!
From top to bottom Angia SafeJack, Hayes Optima and EPS and Ositech Jack of Diamonds.

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These Epsons are competitively priced and worth looking into if you are in the market for a 14 400 PCMCIA fax modem

GVC 14,400 & 28,800 External Modems

GVC has an incredibly popular (number one in Canada, it's claimed) line of competitively priced modems The external models we received came in the time honored distinctive chassis design: black front panel, red LEDs and silver metallic casing These modems do not do anything particularly exotic they come with all the standard features are reliable and priced well

GVC's documentation is some of the best and most comprehensive we encountered, though the hardware is so easy to use that we didn't need to refer to it very often. Nonetheless there is nothing worse than buying a new modem and not being able to track down an initialization string for it, and if you do encounter any problems or questions, the manual will probably have the answer.

We were shipped a Mac connectivity kit with the GVCs which included a hardware handshaking cable and StartFaxing for Macintosh If you want a decent modem for your Mac a GVC and one of these kits could prove quite cost effective. GVC is distributed in Canada through Gentek (On a personal note I bought one of these for my home use some months ago and have never had a problem with it —CF)

Hayes Accura 288B and Optima with ESP Card

Hayes set the standard for modem communication and, despite some recent financial problems (they had to seek Chapter 11 bankruptcy protection and an attempt to merge with Boca failed a short while ago) they are still around to offer us some great modems The Accura 288B is what Hayes considers the consumer end of their line while the Optima series is the high end business line

The Accura 2880 is a good unremarkable modem complete with all the standard features we have come to expect from modems in this class. The Optima on the other hand is a real reviewer's treat. The unit was shipped with an Enhanced Serial Port communication accelerator card which provides automatic flow control and two 1024 byte buffers to prevent data loss

Optima — Best Professional Modem

Using the ESP communication accelerator in conjunction with the Optima we were able to download data at very close to 2880 characters per second (it takes 10 bits for one character to arrive) while multitasking in Windows 95 The ESP card has a suggested list price of $125 Canadian and is supplied with Windows 3 x and DOS drivers and utilities Hayes plans to offer Windows 95 drivers for the product sometime in the future The Optima 28 800 V.34 is not a cheap modem but has some advanced features to justify its extra cost When you hook two Optimas together you can use aggressive 8x compression to get a theoretical maximum throughput of 230 400 bps If only we could all afford one This would be the no compromise desktop PC user's modem of choice (I may just have to send Hayes my paycheck! At least I would like the ESP-CF)

Megahertz 28 800 PC Card Modem

Megahertz has a reputation along with Canada's Ositech as being one of the leading developers of PC Card modems It introduced the XJack connector which allows the user to connect the modem to a phone outlet by means of an ordinary phone plug eliminating the need for a special modem cable Megahertz is the market leader in PC Card modems in Canada by a wide margin and has a good track record as offering one of the most compatible and simple to install lines of PC Cards

Megahertz was recently purchased by one of the biggest players in the modem market, US Robotics but is still operated as a separate entity continuing to do its own R&D Like the other PC Card modems in our survey, the Megahertz was instantly recognized by Windows 95 Its flawless operation and automatic configuration under Microsoft's new operating system, MNP 10 error correction, and a five year warranty perhaps justify its slightly higher cost

Mobitex

And now for something completely different Cantel's Mobitex is a packet switched digital data communication network which is designed to allow subscribers to exchange status or text messages with a control center or each other Each subscriber is assigned a unique identification number which allows the network to be constantly aware of the status and location of each mobile and fixed

Continued on page **35**

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MODEM SURVEY

Modem	Type					Other features	Warranty	Price	Contact
Apex Pocket Fax modem	Ext	14,400 bps	57,600 bps	—	Delrina 4 in 1	Can use a standard 9VDC battery	2 yr	[illegible]	[illegible]
Aztec 2814	Ext/Int	28,800 bps	115,200 bps	—	Delrina 4 in 1		2 yr	$240	905-479-8336
Angia Satellook 28.8	PC Card	28,800 bps	115,200 bps	—	QuickLink II FAX, Phoenix PC Card Manager Plus		Life Ltd	$425*	800-877-9159
Apex Data Multicard *	PC Card	14,400 bps	57,600 bps	—	Faxworks 3.0 & COMit (Windows and DOS)	Ethernet adapter: 10 Base-T, 10 Base-2 (Optional)	5 yr	$446*	905-660-8795
Apex Data Fax**	PC Card	28,800 bps	115,200 bps	—	Faxworks Data 3.0		5 yr	$444*	905-660-8795
Best Data Smart One 14,400	Int 8 bit	14,400 bps	57,600 bps	Rockwell	bitWare Lite For Windows V3.22	Voice Mail System	2 yr	$150*	818-773-9600
Best Data Smart One 2884FX	Ext	28,800 bps	115,200 bps	Rockwell	Delrina 4 in 1		2 yr	$380*	818-773-9600
Boca 28.8	Int 8 bit / Ext	28,800 bps	115,200 bps	Rockwell	Faxworks	Free technical support	5 yr	$383/399	407-241-8621
Boca SoundExpression 14.4VSp	Int 16 bit	14,400 bps	57,600 bps	—	Faxworks, Midisoft	Sound Card, CD-ROM interface, Voice mail/Speaker Phone	5 yr Ltd	$250	407-997-8621
Creative Labs Modem Blaster 28.8	Int 8 bit	28,800 bps	115,200 bps	Rockwell	Delrina 4 in 1	4 On-line Games CD	1 year	$300*	800-998-5227
E-Z Office	Int 8 bit	14,400 bps	57,600 bps	Rockwell	bitWare Lite For Windows V3.22	Turns Fax machine into a scanner, Voice Mail	5 yr	$199	800-736-8212
Epson EFM144C**	PC Card	14,400 bps	57,600 bps	—	Quick Link Mobile	Motorola Enhanced Cellular Control	2 yr Ltd	$419*	800-BUY-EPSON
Epson EMF144FP*	PC Card	14,400 bps	57,600 bps	—	WinFax Lite		2 yr Ltd	$279*	800-BUY-EPSON
Epson EMF144	PC Card	14,400 bps	57,600 bps	—	WinFax Lite		2 yr Ltd	$239*	800-BUY-EPSON
GVC 14,400	Ext	14,400 bps	57,600 bps	Rockwell	Delrina 4 in 1		5 yr Ltd	$139	905-738-9300
GVC 28,800	Int 8 bit / Ext	28,800 bps	115,200 bps	Rockwell	Delrina 4 in 1	Voice Mail	2 yr Ltd	$279/$299	905-738-9300
Hayes Accura 288	Int 8 bit / Ext	28,800 bps	115,200 bps	Rockwell	SmartCom Fax SmartCom LE		2 yr Ltd	$309*	519-746-5000
Hayes Optima	Ext	28,800 bps	230,400 bps	—	SmartCom Fax SmartCom LE	ESP Insert Separate	5 yr	$799*	519-746-5000
Megahertz	PC Card	28,800 bps	115,200 bps	—	Faxworks 3.0	Flash ROM	5 yr	$499	905-336-8188
Ositech 1 (Ethernet) + 28.8 Kbps Jack of Diamonds**	PC Card	28,800 bps	115,200 bps	—	QuickLink II	Enhanced Cellular	5 yr	$827*	800-563-2386 ext 400
Practical Peripherals	Ext/Int	28,800 bps	115,200 bps	Rockwell	QuickLink II	Mac Version (with cable and MacComCenter $383*)	Life Ltd	$379/$349*	404-840-9966
Supra Express 288i PnP	Int 16 bit	28,800 bps	115,200 bps	Rockwell	FaxTalk, COMit	Plug and Play	5 yr Ltd	$240	1-800-727-7772
Supra FaxModem 28.8**	Ext	28,800 bps	115,200 bps	—	FaxTalk, COMit	Caller ID, Mac or PC version	5 yr Ltd	$315	1-800-727-7772
Radicom WS2814V	Int 8 bit / Ext	28,800 bps	115,200 bps	Rockwell	WinFax Lite	Voice Capabilities	5 yr Ltd	$217	905-479-8336
USRobotics Sportster 28,800	Ext	28,800 bps	115,200 bps	—	QuickLink II	Volume Control	5 yr Ltd	$349	1-800-96-KEATING
Xircom CreditCard Ethernet + Modem 28.8	PC Card	28,800 bps	115,200 bps	—	Delrina WinFax Lite	Ethernet Adapter, 10 Base-T, 10 Base-2 (OPT)	Life Ltd	$799*	1-800-96-KEATING
Zoltrix 14.4	PC Card	14,400 bps	57,600 bps	—	Bitfax, Bitcom		5 yr	$109	1-800-567-7413
Zoltrix FM-VOC1440	Int 8 bit / Ext	14,400 bps	57,600 bps	Rockwell	Bitware Lite	Voice Capabilities	5 yr	$90	1-800-567-7413
Zoltrix 28.8	Int 8 bit / Ext	28,800 bps	115,200 bps	Rockwell	Bitfax, Bitcom		5 yr	$199/$219	1-800-567-7413
Zyxel Elite 2864	Ext	28,800 bps	115,200 bps	—	ZFAX Pro	ISDN Upgradable, Voice, Parallel and Serial interface.	5 yr	$795*	416-534-1500

Prices: Asterisk (*) indicates suggested Retail price.

Compression: All modems tested support v42 bis and MNP5 compression

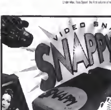
Error Correction: All modems support v42 and MNP 2-4 error correction

Additionally, those marked with two asterisks (**) also support MNP 10 error correction

Fax: All modems support faxing at a maximum of 14,400 bps

Additionally, all support the ITU Group III Fax standard. Epson EMF 144FP also includes Class 2 interface.

Under Max. Data Speed the first column of numbers is the rated speed, the second column is the theoretical maximum.



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Faster and Faster and Faster

Continued from page **33**

terminal in the system In short this is a radio communication device.

This product is not for the average home computer user However, it can provide an integrated solution to many complex business problems such as computer-aided dispatch automatic vehicle location, mobile point of sale terminal and credit verification The portable Mobitex pictured is from Ericsson Communication Several other companies offer similar devices For more information contact Cantel

Ositech Jack Of Diamonds

Best PC Card Modem/Network Combination

Guelph Ontario based Ositech's Jack Of Diamonds PCMCIA combo card is a high end multifunction communication device offering both Ethernet and 28 800 bps connectivity When we talked to a Jack of Diamonds user Mr Roy Alexander, Network Programmer Analyst for McDonalds Restaurants of Canada he recommended the product highly Mr Alexander has tested several PCMCIA multifunction cards and based on his experiences he rated the Ositech Jack Of Diamonds highly

Unlike some other PCMCIA cards whose fragile connectors are a potential weak spot the Jack Of Diamonds features a very sturdy molded plastic connection on the card. The Ethernet portion of the Jack Of Diamonds is particularly well implemented with support for a wider range of protocols than most other cards This card intelligently senses if you have a landline or cellular connection and uses Rockwell's EC protocol to help ensure that cellular connections are reliable

In mobile telecommunications the many possible combinations and permutations of connectivity options often demand that a notebook's modem must figuratively do backflips to make a good connection with every call In this regard the Jack Of Diamonds is a star athlete This card's price is at the high end of the PCMCIA spectrum but professionals looking for near perfection will currently find no substitute Ositech's strong suit is first rate engineering which keeps it on the leading edge of the modem field

New products including the King and Queen Of Diamonds cards are expected to be announced shortly The Jack Of Diamonds coupled with Ositech's excellent support is a real ace in the hole for mission critical mobile communications

Practical Peripherals 288 MacClass 288

These two Practical Peripherals come with little stands that allow them to be stood on their ends in a quasi mini tower arrangement The Mac version of the modem comes complete with a hardware handshaking cable while the PC version does not come with the required serial cable for its operation The resident Mac freak took the MacClass 288 for a spin and he has been avoiding us ever since we asked for it back The list prices we got for these Practicals are far from low however, these modems are solid performers and represent a sensible choice

Radicom W52814IV

The Radicom is a 28.800 bps modem and a group III compatible fax device which also has the distinction of being the only modem in the review that combines high speed communication with voice capabilities This makes Radicom a real chameleon among the modems we reviewed The Radicom has an extremely low list price making it an excellent choice for the price conscious SOHO user who wants both high speed data and voice capabilities in a modem

The only drawback to the Radicom is its poor documentation in comparison to the rest of the modems in the survey We would say the manual is adequate but not comprehensive

Supra Express 144i PnP
Supra Fax Modem 28 8

Best Buy

Supra provided us with the first modem that we have seen that purports to be Plug-and Play We will certainly see more of these PnP modems as Windows 95 builds an installed base For modems, Plug and ▶

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Play is a persuasive feature Modem installations are occasionally straightforward although sorting out communication port conflicts can be a hair pulling experience for even the most seasoned veteran

The SupraExpress comes in two flavors — 14 000 bps and 28 800 bps The modems are Plug and Play compatible with both Windows 95 and with computers with a PnP BIOS In our tests with Windows 95 we found that the SupraExpress 288I certainly lived up to its claim to be a "Plug in fax modem" Just start Windows 95 plug it in and play

One small annoyance with this PnP card was its lack of labeling on the input phone jacks To be truly plug and play one would like to know which jack goes to the line and which one goes to the phone Trial and error soon allowed us to figure that out a small lapse on an otherwise great modem

Pet peeves aside the SupraExpress is a great stride forward in ease of setup and is extremely competitively priced

The Supra Fax Modem 28 8 external is a fabulous modem It has the most informative easy to read display of any modem we have seen as well as several thoughtful and unique features The power button is on the front making it easy to access It is the only non PC Card modem that we received that comes with MNP-10 (an error correction specification designed primarily for cellular data communications) It supports Caller ID and comes in Mac or PC versions Supra is distributed in Canada by Beamscope and GB Micro

Both external models (Mac and PC) came with the external cable another feature we appreciate As Windows 95 builds its installed base we'll see more modems with these features but Supra has set an excellent standard for other vendors to follow

USRobotics Sportster 28,800

Touted as the number one selling modem in the world this modem is not only good looking in a distinctive white casing, but fully featured and well laid out with a handy volume control on the side The documentation is well thought out and has complete instructions for DOS/Windows and Mac users One nice feature is that it can be used with a three wire connection for dumb terminals

Xircom CreditCard Ethernet + Modem 28 8

Not only is the CreditCard a high speed 28 8 modem it also comes complete with all the adapters necessary to make an Ethernet network connection The CreditCard combines top notch modem communications with networking capabilities The only thing the unit is missing is MNP 10

If you can t afford the premium for the 28 800 bps version Xircom also markets a 14 400 bps version that retains all of the networking functionality at a significantly lower cost

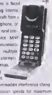
Zoltrix 14 4 PCMCIA, FM VOC144I, 28,800

The Zoltrix 14 400 bps PC Card was iden-

➤

Data and Cellular

Microcom Network Protocol Class 10 could be an important consideration for anyone buying a modem who is faced with making international calls calls from a cellular telephone, or calls from a rural telephone service MNP 10 enhancements include multiple aggressive attempts at link setup, adapting the packet size to accommodate interference changing transmission speeds for maximum operational line speed and shifting modem speed to what is suitable for transmission line conditions



AT&T Paradyne has also written a specification called ETC Enhanced Throughput Cellular, which improves data communications over cellular

Some PC Card modems, like those from Apex, support both

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tified by our copy of Windows 95 as a Cirrus Logic 14 400 bps modem Still what ever is inside this little credit card casing operated flawlessly after a moment of fiddling Zoltrix has all the bases covered offering PC Card voice capable modems and 28 800 bps fax modems The Zoltrix s line of modems is very popular and incredibly competitive in pricing

ZyXEL Elite 2864

Elite is a fitting title for this last minute entry — it does just about everything and has a stack of features that we have seen nowhere else in this survey The 2864 is a standard V 34 fax/ voice modem on steroids It is slightly larger than the average external modem but has the following added functionality

- A parallel port allows the modem to send faxes to a printer turning it into a plain paper fax machine or it can be connected to the PC via a standard bi directional parallel port
- It will take 8 MB DRAM for standalone fax receive and storage
- It has Flash EPROM for firmware upgrades

For the real Elite among us the 2864 is upgradeable to ISDN The Elite series allows ISDN s two 64Kbps B channels to be combined to give 128Kbps ZyXEL claims to be the first manufacturer to have implemented V 42bis data compression over ISDN to allow modems to achieve even higher speeds

(Note: Other manufacturers, for example USRobotics with its Courier I modems are also bringing ISDN capable communications devices to the market.)

And The Winners Are

For this survey we determined to award *Editor's Choice* awards to the internal or external modem models that either offered the best value in terms of price performance (Best Buy) or the best, no-compromise quality for a serious business user For the PC Card category, we chose the best fax modem card and the best network/modem combo card.

Best Buy The SupraExpress 288i

Finally someone ends messy modem installation and setup routines, and offers reliability and speed for a very respectable street price

Best Professional Modem:
The Hayes Optima and EPS

No compromise you have to go with the Hayes modem. The ZyXEL is also a good candidate, but as we got a pre-production model it is difficult to give it our whole hearted support The Hayes is a safe bet and a real treat to use

Best PC Card Modem
Angia SafeJack

We like the Angia SafeJack. Anyone with a broken PC Card in their top desk will agree that a robust connector is as important as the features of the card if not more so.

Best PC Card Modem/Network Combo. Ositech Jack of Diamonds

By all accounts the Ositech leaves the competition in the dust You will not regret spending the extra money to have one of these for your deck. Look for the 10, Queen, King and Ace to appear soon. Ositech is a private Canadian company they do us proud, here, here

The Future: Make It Faster, Cheaper, Smaller, and More Versatile

One of the small benefits of designing computer hardware is that the goals for the next generation of products are fairly clear cut The major drive behind development of new computer hardware is often "make it work faster." Modem manufacturers are currently following the International Telecommunications Union Standards Committee work on the 33 6K standard very closely

US Robotics has already jumped the gun and unveiled software that supports this higher speed Ositech was very coy when asked if they have plans for ISDN modems and 100 mbit networking products Others also have plans to offer products that adhere to the next generation standard You can expect to see some products previewed at the Fall Comdex in Las Vegas in November and actual products should be shipping as early as 1996 ❑

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Beyond Modems – Telecom Via Cable

BY GEOF WHEELWRIGHT

High speed Internet and online access through cable television systems is being actively promoted by cable television companies throughout Canada and the United States as a fast way of bringing the information highway to schools

Rogers Cablesystems (Canada's largest cable TV company) has been operating the CableLink technical trial in workplaces schools and homes since last year Rogers claims that unlike conventional telephone modems which tie up phone lines, the cable modem technology it uses does not interrupt cable services to other cable outlets in a school CableLink-School as the educational trial is known, is described as "a high speed personal computer link to various education and information networks such as Industry Canada's Schoolnet and the Internet " The technical trial for CableLink-School was launched in May 1994 in six schools in North York ON and was Rogers' first PC based initiative

But Rogers is by no means the only company in North America working on the cable data access idea for schools In fact Convergence Systems Inc and TimeWarner's Oceanic Cablevision subsidiary last spring announced the creation of what the companies claim is "the largest high speed educational data network ever created over cable television The network over hybrid fiber coax (HFC) will interconnect public schools (from pre school to high school graduation level) and link them to the Internet

The project initiated by Hawaii's State Department of Education to build an Institutional Network brings schools data and information resource sharing Additionally high speed access to the Internet via a high speed data pipeline to the University of Hawaii Internet backbone is being used Currently Convergence Systems and Oceanic have some 90 schools connected An additional 70 schools on Oahu are forecast to join the network in fiscal 1995 96 ❑

11.8 Million Subscribers Online

NB — The number of subscriptions to all online services grew more than 26 percent to 11 8 million in the second quarter of 1995, claims a report from Simba Information Inc. The "Electronic Information Report's Second Quarter Online Subscriber Survey" showed much of that increase came from the consumer end of the online service spectrum

Consumer online services grew at a rate of more than 37 percent to 8.5 million subscribers, the survey showed. The other segments of the online market that brought up the total number to 11.8 million include business/professional services, computerized reservation systems, and financial networks

The commercial service with the largest growth was America Online Simba said it gained 1 5 million members for a total of 3 million subscribers for a 100 percent growth rate CompuServe grew about 20 percent to 3.2 million subscribers, which preserved its number one status among the big 3 services Prodigy, considered to be the third of the Big Three, saw a 12 5 percent gain in subscribership to 1 4 million members.

Of the business/professional services Lexis-Nexis still reigns king at 734,000 subscribers, followed by Dow Jones News/Retrieval at 225 000 registered users America Airlines' Sabre is the top computerized reservation system with 145,000 users The Apollo system, used by United and other airlines, is second at 59,000.

In the financial online service area, Reuter's Information Systems is in first place with more than 309,000 subscribers In second place is Dow Jones News Services at 142,000 users ❑ – *Bob Woods*

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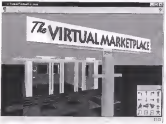

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What's New in 3D

BY GRAEME BENNETT

This is an exciting time in the computer world, with the rapid decline in hardware prices and corresponding improvements in processor performance. With these advances, we've seen the blossoming (or should we say bloating?) of many categories of software. In this series of articles, we'll look at the latest advances in 3D software for PCs and Macintosh/Power Mac computers.

3D software is increasingly popular for many types of work: industrial and architectural design, modeling and rendering, scenario simulation, broadcast animation, desktop publishing and, of course, games are just a few of the most popular uses.

Continued on page 42

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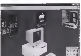

VRML Invades The Web

BY GRAEME BENNETT

The biggest news on the Web is perhaps the explosion of interest in VRML, the virtual reality modeling language that allows 3D models to be displayed and manipulated in real time on the World Wide Web

Fueling this interest is the availability of free VRML browsers for various computer platforms For Unix and Windows NT systems SGI has released a VRML browser called WebSpace (Mac and Windows clients are said to be forthcoming)

Webspace is at
http //www sgi com/Products/WebFORCE/WebSpace/WebSpaceDownload html

There are several VRML browsers currently available for the Windows 3 x/Windows 95 environment and, as is common in the world of Internet applications most — if not all — are in alpha or beta stages of development. The first VRML authoring tool we encountered for Windows was Home Space Builder (described elswhere in this series) the first VRML browser released for the Windows 3.x/95/NT environments was WorldView 0 8d1 (which was updated to version 0 9E in late August) The initial "alpha" release of Worldview was a little rough around the edges but the later beta version is much more stable WorldView adds VRML functionality to your current Web browser and can also load VRML files without requiring an Internet connection

You can find WorldView at
http //www webmaster com/vrml/

Somewhat higher on the evolutionary scale, both in features and performance is the WebFX browser extension released in August by Paper Inc We tested two versions

Continued on page 45

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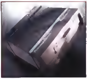

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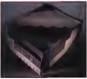

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VRML

Continued from page **42**

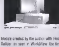
of WebFX. One seamlessly integrates with Quarterdeck's Qmosaic browser; another release similarly integrates with the 16-bit version of Netscape Navigator (1.1 or 1.2). A future release is promised for the 32-bit version of this popular Web browser for Windows 95 and NT (we did, however, run the 16-bit version of Netscape and the WebFX extension under Win95). An interesting feature of this VRML extension is its ability to grab a model and send it into a spin or an orbit of its own.

Check out WebFX at http://www.paperinc.com/

Yet another (pre)release for the 32-bit Windows environment is WebVR, which requires both Win32s and WinG. We found the WinG system extension to be a little tricky to track down, so we haven't yet tested this VRML extension.

We haven't yet seen a VRML browser or viewer for users of 68K Macintosh computers, but a freely downloadable VRML browser called Whirlwind brings VRML to Power Mac owners. It loads .WRL files such as those that I've created and/or uploaded to *The Computer Paper's* Web site (http://tcp.ca/gsb/VRML/).

Producing VRML Code



Models created by the author with Home Space Builder as seen in WorldView, the first VRML browser for Windows. You can check them out for yourself at *The Computer Paper's* WWW site: http://tcp.ca/gsb/VRML/

The beta 1 version of HSB currently produces VRML code that WorldView is incapable of parsing, but the beta 2 version, which costs US$49.95, conforms to VRML standards. However, I love a challenge. And now, you too, can be a VRML code hacker! Here's how to hack the code from Beta 1 so that models created with HSB will load into WorldView:

- load the .WRL file into your favorite word processor.
- search and replace "model" with "#model" (leave off the quotation marks)
- try loading your file into Worldview. If there are any other error messages, comment out those lines with a #, too.

You can find HSB at http://www.paragraph.us.com

(A second beta that promises bug-free VRML code output is available for US$49.95. At press time, we have not tested the second beta.) ❑

Whirlwind requires Apple's new QuickDraw 3D — the first PowerMac-specific Apple extension we've seen. It's also worth mentioning that QD3D absolutely requires at least 16MB RAM. It is not possible to "fool" it into running on a system with virtual memory or RAM Doubler.

QuickDraw 3D, Whirlwind and several other interesting demos can be found at http://www.info.apple.com/qd3d/QD3D.HTML.

The first Macintosh to be shipped with QuickDraw 3D — the Power Macintosh 8500 — was announced at the MacWorld Expo in Boston in early August. QuickDraw 3D is now available on Apple's Web site for other Power Mac models, and the company promises to start shipping it with other Power Macs in the near future. It does not run on 68K Macs, although a Pentium release is promised "within six months."

What, exactly, is QuickDraw 3D? It is essentially a set of high-performance 3D graphics primitives and a 3D metafile format (known as 3DMF) that addresses one of the most legitimate complaints about current 3D technologies: the de facto standard file interchange format, DXF, is — to put it bluntly — pretty lame.

DXF doesn't support the transfer of many important attributes of 3D models: colors, lights, camera positions and textures are all lost in the translation. Apple is hoping that by establishing QuickDraw 3D as a standard, it can help advance the state-of-the-art. (It can be argued that VRML itself is another attempt to do this.)

As the old saying goes, standards are great, that's why there are so many of them. Although we are inclined to believe that Apple should have embraced an existing standard instead of defining yet another one, anything that can help us move away from the limitations and dominance of the DXF format is a Good Thing.

At the above-mentioned Apple site there's also a translator that converts Wavefront object files to QD3D format. Although few if any currently shipping Macintosh 3D programs support the QD3D format, Strata, Macromedia, Specular, Ray Dream and most of the other Macintosh 3D vendors have promised support in upcoming versions. Similarly, support for VRML import/export is widely promised but few commercial 3D vendors are currently shipping products with VRML import/export features.

There are, however, several solutions for those wishing to build their own VRML models, the best of which is currently a program called WCVT2POV.EXE, a free Windows program written by Keith Rule. (Keith asked us to mention that wcvt2pov requires WIN32s for WIN3.1 users.) Rule says the next version, due around Christmas time, will read VRML as well as write it.

WCVT2POV and a magazine of interest to POV Ray users (POV Ray is discussed later

Continued on page **48**

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Windows 95 a Boon To Portable Users

BY GEOF WHEELWRIGHT

One breed of user who will see some immediate and real benefit from using Windows 95 is the notebook computer user. Windows 95 includes a number of battery management, file transfer and PCMCIA (or PC Card) utilities that handily take the place of a number of products from third parties that notebook computer users have previously had to rely upon.

Perhaps most importantly, Windows 95 knows a great deal about most modern portables. It has enough built-in intelligence to handle the installation of software to support most credit card-sized PC Card expansion cards. And Windows 95 can often use these even without the set of proprietary software drivers that have been included with most notebook computers over the past few years. Windows 95 also taps into battery management systems to allow software access to battery status information directly from Windows 95 operating system utilities.

This is due to the Plug and Play technology included in Windows 95, which attempts to find out as much as possible about what is going on with your hardware before it starts asking you for information. For most users this is a real boon, as they do not generally know the interrupt request location and memory addresses of their internal devices off the top of their heads.

The interesting thing about this technology is that it's quite pervasive across almost any device you might plug into your notebook computer. Using a Plug and Play-compatible printer, for example, you will get a message on the screen when you hook it up to your Windows 95 based notebook computer for the first time, saying that you have connected to a XYZ (or whatever the name of the printer is) printer and should Windows 95 copy the necessary software across to take best advantage of this printer?

This means that the printer can then tell Windows 95 when it is out of paper, when it needs to have more toner, or when you should insert different types of paper (such as envelopes). This kind of intelligence being passed back and forth between printer and computer is particularly useful for notebook computer users who might find themselves using other people's printers when they are traveling.

Meanwhile, Windows 95 users may find that they no longer need LapLink or any other kind of file transfer software. Using the Windows 95 dial up networking option, it is possible to link desktop and notebook computers via networking card, serial or parallel cable. Having done so, files can be dragged and dropped from one machine to another while drives (including CD ROMs) can be mapped from desktop system to notebook computer (and vice-versa). The latter feature is particularly useful when installing CD-ROM software from a desktop computer's CD ROM drive to the hard disk on a notebook computer.

Windows 95 also includes a briefcase feature that lets you create a desktop folder with a briefcase-shaped icon. When desktop computer and notebook are linked, you drag desktop computer documents into the notebook computer's briefcase. After using those documents on the portable, they will automatically be updated on the desktop via the briefcase next time you connect the desktop and portable systems.

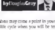
The personality features of Windows 95 may also be helpful to notebook computer users, particularly when you have a single notebook computer shared between a number of users for off-site work. Using Windows 95's password protection system, it is possible to create different set ups for the notebook which are invoked depending on who logs on to it.

For example, if you had the machine shared between a group of insurance specialists, you could have it set to load up insurance rate estimation tables if a member of the sales force was using it, yet ready to automatically load a claim adjustment software package if one of the claim adjusters was using it.

Finally, for notebook computer users who constantly switch between using their machine on the road with its built-in screen and at home with an external display, the facility to switch screen modes quickly will be very helpful. Unlike previous versions of Microsoft Windows, you do not have to reinstall Windows 95's screen drivers just to take advantage of the properties of a better external screen display.

You just change the display settings within Windows 95 (or set up a different configuration with different password and ID for it) and often don't even have to worry about restarting the machine. It will usually change resolutions on the fly and leave all your work intact. ❑

Business Partnerships: Heaven Made Or A Living Hell?

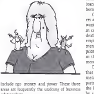


There may come a point in your business life cycle when you will be tempted to consider a partnership relationship. Some may think this is a panacea and will ensure the success of the business. This may be so. On the other hand, it is more often a naive myth than a pragmatic reality.

You should honestly ask yourself why you are considering a partnership and if you think a partnership would work out. Some people go into a partnership relationship because the other partner(s) have money, contacts, expertise or skills which complement their own contribution. If this describes you, you might want to consider other business alternatives that might meet your goals. For example, having a joint venture or strategic alliance, or consulting or independent contractor relationship on an "as-needed" or project basis. These options can be structured to give you individual autonomy, independence, flexibility and control. In effect, each party would still retain their separate business structure in legal and tax terms.

Warning Signs

The reason you want to be cautious is that the casualty rate for business partnerships is very high. There can be many factors causing a falling-out. It is not uncommon in terms of human dynamics to have conflicts occur, due to differences in priorities, personalities or philosophies over a period of time. In addition, there could be differing expectations by each of the individuals in terms of the contribution of time, money, and talent.



Other factors that tend to cause friction include ego, money and power. These three areas are frequently the undoing of business relationships.

Business conflict usually results when extremes occur: for example, when the business is doing very well or very poorly. Another factor is burnout or life-style changes. After a while, many people get tired of the time, energy and commitment involved in a business operation and want to do something else, go into another business or otherwise free up their money that is invested in the business. There can also be marital or health problems that cause a person to lose interest in the business or create conflict within the business.

Agreements Make Good Business Sense

For these reasons, and given the serious implications that would result, you should have a partnership/shareholders agreement to protect your interests if you enter into a partnership. The agreement sets out formulas for resolving potential disputes and other issues. These may include, for example, division of duties and responsibilities, life insurance on partners, powers of directors, selling the business, share sales and transfers, shareholder investment, loans or guarantees, signing authorities and borrowing powers of the company.

One of the key provisions in a shareholders agreement is a buy/sell clause. You may want to buy out your partners, or vice versa, in certain situations, such as disagreements, death, disability, bankruptcy, termination of employment or default of terms of the agreement. The agreement should be prepared prior to the incorporation of the business or in the case of a partnership, prior to commencing business.

Draft your own version of the key factors that you would like included in an agreement after discussion with your potential partners. Then take your draft agreement to the lawyer being retained for the business, to be reviewed and finalized. Make sure you have your own independent legal advice. Every partner should do this, as the corporate lawyer cannot also advise the individual partners. This would be a conflict of interest.

The legal costs involved will depend on the degree of complexity of the agreement, the number of shareholders or partners involved, the number of meetings that might be held to go over and explain the various terms of the agreement, and other factors. At an estimated charge-out rate of $150 per hour, you should expect to have an average time range of from 5-10 hours ($750–$1,500) for a basic shareholders agreement. ❑

Douglas Gray, *LL.B., is a Vancouver based speaker, lawyer, consultant and author of 15 business books plus a real estate investment software program. His books include* **Home Inc. The Canadian Home-Based Business Guide** *and* **The Complete Canadian Small Business Guide** *(both by McGraw-Hill Ryerson),* **Start and Run a Profitable Consulting Business** *and* **Marketing Your Product** *(both by Self-Counsel Press).*

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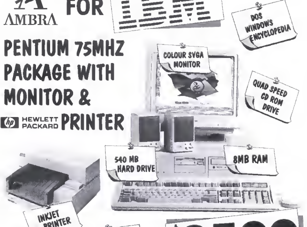

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VRML

Continued from page **45**

in this article), can be found at Keith's Web site at http://www.europa.com/~keithr

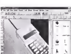
Syndesis' $495 Interchange utility and the above mentioned program Home Space Builder by ParaGraph International are other currently available VRML code emitters.

Naturally several commercial 3Dsoftware developers are planning to support VRML in their products. Caligari, makers of the powerful trueSpace 2 program for Windows (discussed below) and Virtus (http://www.virtus.com/), makers of the Walkthrough line of products for Macintosh and Windows computers, have both announced their intentions to release VRML products. The Caligari VRML tool code-named Fountain, is slated to be offered for free on the company's Web site on the Internet (http://www.caligari.com/) after September 30th.

Contact Caligari Corporation at (415) 390 9600

The VRML discussion groups on the Internet, too, are abuzz with news and information about new developments. In late July Microsoft and Caligari announced their intention to support VRML in Microsoft's forthcoming Blackbird interactive application development environment. To cap off the Caligari announcements, the company has announced trueSpace SE, a low-cost, entry level version of its 3D modeling, animation and rendering application for Windows.

Although the company's press release says "Caligari Corporation has introduced Caligari trueSpace/SE for Windows...an entry-level software product for three-dimensional (3-D) graphics and animation", we spoke to a technician who confirmed that this "new" version is simply a repackaged and price reduced re-release of trueSpace 1.0. Elsewhere in this series, we'll describe the company's professional level 3D offering, the US$795 trueSpace 2. But first, let's look at some more of the many recent VRML developments.



Featuring a better user interface than trueSpace, TriSpectives makes extensive use of the tabbed dialog metaphor and Wizard functions so prevalent in Win95. At press time, TriSpectives wasn't yet shipping, but is expected to be by the time you read this. We saw the late beta release at the August 24th launch of Windows 95 in Redmond.

Literally the day before this article went to press, we received the "Final beta" of TriSpectives, a brand new 3D program from a company called 3D/Eye. TriSpectives supports VRML and is a 32-bit Windows 95 and Windows NT application. Although we obviously haven't had time to extensively test it, early indications suggest that it needs more than 8MB of RAM to work effectively. (We also tried it with Syncronys Software's SoftRAM, to no avail.) On the Pentium PC with 16 MB or more of RAM though, it appears to be a contender for one of the top 3D programs in its price bracket.

TriSpectives supports real-time solid modelling, animation and extensive import/export options. We were impressed by its excellent import and export compatibility with Autodesk 3D Studio and VRML export and numerous advanced modeling features. The standout feature appeared to be a function the company calls "SmartRender," that turns on ray tracing only for those objects in a scene that need it. This dramatically improves rendering speeds. We also liked a feature the company calls "SmartSnap" (do we detect a marketing department at work here?), where an object — say the legs of a table — automatically snaps to align with another object, like a floor.

3D/Eye says TriSpectives will be available in two versions, a standard edition for US$299 and a US$499 "Pro" version, which adds CAD-like auto-dimensioning (dubbed "SmartDimensions" of course) and additional import/export options. We'll report further details of TriSpectives when we've had a chance to test it more extensively.

Contact 3D/Eye Inc. at 607 257 1381

Ray Dream Studio

Teri Campbell-Chadbourne, a spokesperson for Ray Dream, another leading 3D graphics software developer, says she is getting 500 calls a week from people asking about VRML support. *The Computer Paper* spoke to Eric Hautemont, the president and CEO of Ray Dream, at the recent launch of CorelDraw 6, where he was in attendance at a demonstration of the new CorelDream 3D and CorelDepth modules based on Ray Dream code.

Hautemont confirmed that the company plans to release a free VRML extension for its newly announced Ray Dream Studio later this year. Hautemont also described several exciting developments in the forthcoming Ray Dream Studio. Inverse Kinematics, rotoscoping and animation are but three of the more interesting features promised in the new release.

Announced at the Siggraph show in early August, Ray Dream calls Ray Dream Studio its secret weapon. The package, touted as an integrated suite of software for 3D illustration and animation, combines RDD 4, hundreds of 3D models, a complete developers toolkit and the debut of Designer's Animation Extension.

RDS is due to be released in the third quarter of 1995. At press time, the company was not sure if the initial release would include support for Apple's QuickDraw 3D, but said it was committed to supporting this emerging technology, which will reportedly allow different packages to share models with greater sophistication than is currently possible via the aging DXF standard.

Continued on page **50**

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VRML

Continued from page **48**

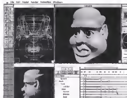
We'll discuss RDS in more depth after we've had a look at it.
Contact Ray Dream at 415-960-0768

Ottawa based Corel (613 728 0826) purchased the core code for Add Depth and Ray Dream Designer from Ray Dream at the beginning of the year, and on August 10th announced that CorelDraw 6 would include Corel Depth and Corel Dream based on those technology acquisitions. We asked Ray Dream's Teri Chadbourne whether she expected Corel's version to be a generation behind, or keep pace with the developments in RDD. Chadborne replied: Corel purchased the core technology, they are free to change it as they please.

Ray Dream's Eric Hautemont said his company is working on adding support for Intel 3DR support and hardware acceleration to future Ray Dream versions, and that these innovations would also show up in future releases of Corel.

Although Chadbourne said she thought that the new animation extension in Ray Dream Studio would further differentiate the Ray Dream and Corel products. Corel has licensed the Logomotion code (a slightly stripped-down version of Infini-D) from Specular Internal

➤



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tional and indeed the new Corel release seems to have very nice animation capabilities courtesy of a product now known as Corel Motion 3D.

We're currently a bit gun-shy on recommending new Corel releases after the numerous bugs that characterized the initial shipments of the last three versions, but we're currently testing "Release Candidate 1" of CorelDraw 6. Corel announced that it began shipping the final version on August 24th, so as soon as we've had a bash at the final product we'll report on its reliability or lack thereof. It's probably safe to say that Release Candidate 1 wasn't the version that finally shipped — at least we hope not.

For the Macintosh

In case you're not familiar with Specular International's Infini-D, you may wish to refer to our March 94 issue (http://tcp.ca/March/MarchContents.html/) where we spoke very highly of its ease of use, documentation, animation and text/texture morphing functions. All of these features are present in the CorelMotion release. On the other hand, we also noted that its DXF import and export functions and modeling features were both pretty weak. (Ditto for the Corel module. A bug where one text character cannot be edited but two or more can also made the transition to the Corel product and, in fact, still exists in the new Infini-D 3.0 release.)

Wisely, Corel is targeting its version of the software as a logo animation utility. Infini-D is well suited for this and other relatively undemanding 3D tasks. Like all of the Mac-based programs mentioned here, Infini-D runs native on Power Macs.

Our tests of the 3.0 release of Infini-D suggest that it has maintained much of the flavor of the 2.x version; the notable addition is spline-based modeling. The 3.0 release continues to lack support for Booleans, solid model editing, inverse kinematics and other advanced features.

Users report some compatibility problems running version 2.6 or earlier on the Power Macintosh 9500; the 2.6.2 and 3.0 updates address these issues.

Infini-D version 3.0 adds numerous features, most notably spline-based modeling, grids, rulers and so-called "texture decaling," where textures can be "pinned" to an object.

The company has promised buyers of version 3.0 a free update to version 3.1. Due in October 1995, the company says the update will add support for QuickDraw 3D and interactive rendering, as well as performance optimization for the newest PowerPC 604-based Macintosh models.

Despite the uncanny resemblance between Infini-D and its slightly stripped-down sibling, Logomotion, and the Corel Motion 3D utility that is part of CorelDraw 6.0, the file formats are not, as far as we can tell, directly compatible. However, the programs (and most other 3D titles) can share models via the DXF import/export functions. ❑

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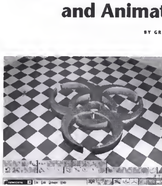
TCP Picks: Our Favorite 3D Modeling and Animation Programs

BY GRAEME BENNETT

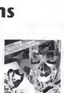


PC:

trueSpace 2

The 3D program we're most impressed with overall at the moment is Caligari's trueSpace 2. For one thing, it's nothing short of amazing to lurk around the company's tech support areas on CompuServe and America Online (keyword "CALIGARI"), or the Graphic User Group areas ("GO GUGRPA" on CompuServe) and find almost nobody complaining. Problems are practically nonexistent, and nearly everyone is raving about the features and performance of this newly updated version. We are too, although our least favorite feature is the program's complete lack of named object hierarchies.

Unlike Ray Dream Designer (and, by virtue of their shared code, CorelDream), Infini-D and other programs that show model components as a "tree" of named objects, trueSpace lacks the ability to select objects in this way or even to name individual model parts in this way.



Despite this limitation, and its lack of such advanced features as Inverse Kinematics and texture morphing, we recommend checking out trueSpace if you are in the market for a fast, easy-to-use 3D program with animation, ray tracing, 3D Boolean support and the killer feature we think will become de rigeur in the future: real-time solid modeling courtesy of Intel 3DR 2.0 technology, complete with shading and texture-mapping.

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IMPORTANT MESSAGE

You'll never want to go back to wire frames especially if you have a video card that supports hardware 3D acceleration We were however disappointed to hear that the current drivers for the Canadian made Matrox Millennium video card and its predecessor the Impression Plus are in the words of a Calgari technician "not working well at all at the moment" Apparently the company had a set of beta drivers for a Millennium card supplied by Matrox for the Siggraph show in August but found them so problematic that they ended up not showing them at all But when the finalized drivers are available and working properly (a perennial problem with leading-edge hardware in general!) the Matrox Millennium and trueSpace 2 should be a potent combination

Sure we can argue over whether this-or that program has a better helix function or easier Booleans than its competitors but, at least in our books much more important things to consider are performance and reliability

Clearly 3d f/X trueSpace2 and TriSpectives with their support of real time solid ➤

Buyers Tips –

Trying to decide on the right 3D program?

Check your local magazine rack for the many computer magazines that now come bundled with CD-ROM discs In recent months, we've picked up the full version of VistaPro 3 0 (in the premiere issue of an English mag called *PC Guide*), a 30-day trial version of Asymetrix' easy-to-use low-end (US$69) title 3DFX, a demo of Autodesk 3D Studio and a host of other 3D info for a song

If you have a modem, you may be able to find demo versions and info online, too The World Wide Web URL (Uniform Resource Locator) addresses in this article are a rich source of info, models, and amazingly good 3D programs

There are numerous discussions on a variety of 3D and graphics-related subjects in the Usenet newsgroups ALT 3D and COMP SYS GRAPHICS *

Numerous books are available too, typically with a CD ROM full of samples and trial versions for you to play with

If you are planning on doing modeling and animation, or think that you may require animation in the future, it is best to get a program with these functions built-in Some programs, such as Ray Dream Designer 3 x Alias Sketch, Pixar Showplace, Formz, etc , do not have animation functions ❑

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INTERFACES	2 serial 1 parallel w/16550	2 serial 1 parallel w/16550
FORM FACTOR	MID TOWER	MID TOWER
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POINTING DEVICE	ERGONOMIC MS MOUSE	ERGONOMIC MS MOUSE
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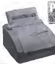

Model #	HL 641	HL 660
Speed (PPM)	6	6
Resolution (DPI)	300	600
Engine Manu and Speed	Brother	Brother
CPU	16 MHz	25 NHz
Memory Min / Max	0 5 / 2	2 / 10
Type of Memory	Memory Module	Standard SIMMS
Toner Life (5% fill)	3000	3000
Drum Life	17 000	17 000
Volume print/stand/sleep	50 / 38 /	60 / 38
Dimensions (inches) HWD	14 4 x 14 3 x 7.2	14 4 x 14 3 x 7.2
# of Fonts	35	61
Paper Input Tray Size	200	200
PCL Version	4	5e
Postscript Level 2	No	optional
Warranty	2	2
Interface Switching	Yes	Yes
Automatic Emulation	Yes	Yes
Economy Print Mode	Yes	Yes
Power Used (printing)	480	480 W
Power Used (standby)	60	60 W
Power Used (sleep)	10	10 W
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modeling on any PC, stand as a harbinger of future trends in the very near future we expect hardware accelerated 3D rendering to be commonplace

At the moment, these innovations give trueSpace2 a significant performance edge that puts it at the top of the hill in our books.

We'd recommend checking out trueSpace's performance on the same machine(s) you compare any other 3D program on It's the performance factor that ultimately makes or breaks a 3D program

3D Second Opinions

Speaking in the alt.3D Usenet newsgroup on the Internet, Marc Remijn commented, " from people in the know, I get the suggestion that FormZ is the ultimate package I've read it is very strong at modeling and can drive 3D output devices and read from 3D input devices. But when I looked at samples on the CD [included with the book 3D on the Mac] I didn t like the renderings They looked artifical in comparison with Infini D's and Byte by Byte s Sculpt's and Shade s renderings Unfortunately, no samples of output by the new 'Renderzone' version of FormZ [were available] on the CD I did see some tiny images in a brochure but they still didn t look as good to me as those of other said programs " ❑

Macintosh:

Ray Dream Designer

On the Mac users name several different programs as best in different areas Ray Dream Designer is a lave modeler (its neat 3D paint feature is often mentioned which lets you paint directly onto 3D surfaces) However it lacks Booleans, which makes it fairly useless for serious work As mentioned earlier the forthcoming Ray Dream Studio will address most of the shortcomings of the current version

Alias Sketch

Alias Sketch has NURBS Booleans fast ray tracing and other powerful features but as I reported in the Sept 94 issue of *TCP*, has flawed DXF file import capabilities and is a bit of a memory hog (it was a challenge to get it working on a 16MB PowerMac How I did it is described in detail in the article found at http://tcp ca/Sept94/3DPower.html)

Of course anything to do with animation is a moot point in Alias Sketch as it doesn t currently do animation

Sketch s NURBS (non uniform rational b-splines), give it some interesting capabilities, such as surface deformations where objects have varying degrees of pliability around the area you are pulling on

Infini-D Bottle Knight

Infini D

Infini D is often mentioned as the best low end Mac 3D product for animation with the US$7495 ElectricImage Animation System getting the nod at the high end.

Infini D 2 6.2 suffered from a fairly limited modeler, but enjoyed great animation, text and texture morphing features Version 3 0 with its new spline based modeler, goes a long way toward addressing our complaints with the limited modeling features in v2 x while maintaining and expanding upon the great animation features of previous releases with so-called animation assistants that can bounce, spin, explode or automatically bank animated objects

We use Infini D a lot for its cool object and texture morphing features Infini-D's performance is also better than that of any of its competitors on modest hardware If you re into 3D animation check out the new 3 0 version before deciding on a Mac 3D program

Editor's Choices – Simple Animation

- (PC) Caligari trueSpace2 Corel Motion 3D
- (Mac) Specular Infini-D Vidi Presenter Pro

Notes trueSpace2 supports several interesting animation features including the ability to have models automatically bank as they round a curve spline-based paths, and a "look at" feature that keeps the camera automatically pointed at the object you want to follow

Lights can be colored and animated too

Infini-D and Corel Motion 3D share the same feature set notably the ability to morph objects, text and bitmapped textures (trueSpace2 cannot do any of these things) All three programs use an easy VCR-like panel for setting up recording and playback parameters.

Editor's Choice Advanced Animation

- (PC) Real 3D Autodesk 3D Studio Newtek Lightwave, Hash Animation Master Byte by Byte Soft F/X
- (Mac) ElectricImage Animation System (at US$7495 EAS is very expensive, but highly regarded by professionals) Hash Animation Master.

Although we were unable to persuade Hash Enterprises to send us a demo copy of the program "Steve " a user in the Usenet news group ALT 3D was good enough to forward this info

Animation Master v2 (v3 is reportedly due to be released soon) has excellent cha-

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acter animation features including Inverse Kinematics for skeletal animation as well as muscle morphing which allows you to make muscles bulge, faces express emotions and squash and stretch. (Inverse kinematics allows, for example, a model's arm to automatically move when you pull on its hand.)

It also has a feature called spine motion which allows any segment of a model to be animated by simply moving a single spline which acts as the controlling spine. For example, a character is made to bend over. You can control the spine causing the character to bend. His belly and back stretch and bulge just as in real life in response to the control spine. This can be used for any thing, not just human characters or life forms, and is very powerful.

For character animation and modeling, as well as just standard inorganics, spaceships, architecture, etc., you might find that a program with a clay modeling type of surface deformation interface makes these jobs easier

Unlike all three of these, FormZ (another popular modeler for Macintosh) AM is a fully functional package including modeler, animation features, and renderer. FormZ has an additional rendering module, but it's still just a modeler at heart and does not have any animation features.

AM runs native on Macs and v3 is just around the corner, which will support QuickDraw 3D. It also runs on SGIs, WinNT (MIPS and Alphas), WinFW, Win95, Mac DOs, and Amigas (though that will be dropped for v3).

An AM demo tape is available, which has many examples of AM's animation and output.

The quality of the output is such that many very big companies are using it for game development.

Boolean and Beyond

For sophisticated modeling capabilities, we would recommend a program that supports Boolean functions, which allow you to combine objects or (more commonly) subtract one object from another. (Although 3D/Eye's TriSpective does not have true Boolean functions, it has a feature that produces similar results.)

For character animation and modeling, as well as just standard inorganics, spaceships, architecture, etc., you might find that a program with a clay modeling type of surface deformation interface makes these jobs easier. Surface deformations allows you

►

3D Studio: What Others Are Saying

After browsing the information services, newsgroups and other online discussion areas, one keeps seeing certain repeating themes.

The DOS-based 3D Studio is considered clumsy, a mediocre renderer, and, at about US$3000, too expensive by many, but is very powerful and is well-liked (despite its hardware dongle-based protection scheme) by those who've mastered it. It is the de facto standard in the PC world of 3D graphics and can be extended in many ways through the use of optional (extra-cost) IPAS routines. Autodesk is the same company that makes the popular engineering 3D program AutoCad.

Here are a few comments from users of 3D Studio that we collected from the 3D conferences on USENET.

"3DS has great animation and is quite fast. However, everything [i.e. sample output] I have seen tends to look a little hazy. The crispness is not there like in Raytracing. The modeler in 3DS must have evolved off of an engineering ... the interface is horrible ... many nested menus which take a lot of time to access one single command ... if you want to select something you can't just select it. You have to open the proper menu and choose select, then choose object, then choose single, but this is the way every thing is in 3DS.

There are many other nested menus in 3DS that don't automatically pull out like in Windows; you have to click on each menu. 3DS takes way too much clicking and menu changing to get anything done ..."

"To be fair, however, they use 3DS because of its quick animation speed."

You may run across ads in the paper that say there is a student version of Autodesk 3D Studio for only US$500. In case you were wondering, this version is not watered down. It has all the tools that the $3000 version has. By encouraging use of the program by students, Autodesk's gambling that when those kids graduate from college as proficient 3DS users, they will pressure their new employers to buy 3DS and Autodesk software at the (ahem) real prices. If this actually works, Autodesk stands to make quite a profit off their investment in students.

Indeed, Autodesk dealers confirmed that the student version is exactly the same program as the one for three grand, with one important distinction: the upgrade policy is different. Be sure to ask about upgrade and support costs before jumping into this "super deal." ❑

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to push or pull portions of a model as if they were taffy

Editor's Choice
Booleans and Surface Deformations
- (PC) Caligari trueSpace Real 3D Hash Animation Master
- (Mac) Alias Sketch Hash Animation Master auto•des•sys FormZ, Vidi Presenter Pro

We also found that we preferred modelers that optionally let us manipulate solid shaded objects directly as opposed to working in wireframe mode all the time At this time, no Mac or PowerMac-based modelers could compare to the performance of trueSpace or 3D F/X on the PC

Solid modelers
- (PC) trueSpace 2 TriSpectives, 3D F/X Ray Dream Designer CorelDream 3D
- (Mac) Ray Dream Designer Fractal Design Poser

Rendering
If realistic rendering is your thing, you should look for a program that supports ray tracing and/or radiosity rendering (a variant is referred to as "raydiosity" in Strata Studio Pro) Some programs such as Autodesk's 3D Studio do not support ray tracing.

Editor's Choice Rendering
- (PC) TriSpectives trueSpace2 (also supports hardware 3D acceleration for real time rendering) Lightwave (also available for Amiga) Byte By Byte's Soft F/X is a very fast renderer as well.
- (Mac) Strata StudioPro (raydiosity) Pixar Showplace

It's worth mentioning that the industry leading 3D Studio does not directly support ray tracing, although it can produce models with shading texture mapping and other effects that may closely resemble a ray-traced result

Strata StudioPro has decent modeling and fair animation with a slightly clunky interface but is fairly slow overall The most recent release added support for Booleans Our least favorite feature of StudioPro? If you create a 3D volume from a 2D shape and then decide you want to edit the 2D shape you have to delete the entire shape and start from scratch Bogus

Architectural 3D
For architectural modeling and rendering one of the most important features is the ability to match the perspective of an existing photograph so that photorealistic images may be smoothly integrated with existing surroundings Rendering quality is important here as is the ability to easily view models from different perspectives against imported backgrounds

Editor's choice Architectural Modeling and Rendering
- (PC) Autodesk 3D Studio 3D/Eye TriSpectives, Caligari trueSpace
- (Mac) Alias Sketch auto•des•sys FormZ (renderer is a separate module) (The newest release of FormZ was reviewed in the Aug 15th issue of *MacWeek* — Ed)

Landscape Modeling and Rendering
When it comes to moving mountains — or building them — these are the programs we turn to

Editor's Choice Landscape Modeling and Rendering
- (PC) VistaPro 3 0 (a Pro version recently became available as well) VistaPro's renderings aren't especially good-looking, but it's fast.
- (Mac) HSC Software KPT Bryce (beautiful but slow renderer) VistaPro 3 0

VistaPro, TrueSpace 1 02 and KPT Bryce were all reviewed in our Nov 94 issue (http://tcp.ca/Nov94/Contents html)

Human Form Modeling and Rendering
(Mac) Fractal Design Poser Although hampered by the fact that it only outputs DXF files or pre-rendered pictures, this program's intuitive interface and extensive library of pre-defined poses makes it ideal for adding human forms to 3D scenes. We were unable to get the program to work reliably on our PowerMac but it ran reasonably well (albeit a lot more slowly) on an FPU-equipped 68030-based Mac IIfx with 8 MB RAM

3D for Windows 95
The only "native" Windows 95 programs we've seen are Corel's offerings in CorelDraw 6, 3D/Eye's TriSpectives and Byte by Byte's SoftF/X 3D The latter title was another program we have not tested extensively but saw demoed at the August 24th launch of ➤

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Windows 95 in Redmond. Byte by Byte's SoftF/X 3D animation software runs very nicely under Windows 95: very fast and reasonably memory efficient. The company says it has a number of users running SoftF/X v2.5 under Windows 95 comfortably on 8 meg RAM equipped systems. However, we were not especially impressed with the user interface or feature set (it lacks solid object manipulation capabilities, true inverse kinematics, Booleans, VRML support, and cannot select objects from a hierarchical list). The animation and rendering features (the program has a so-called 'scanline' renderer that produces ray-tracing-like results in much less time) looked like the most impressive parts of the program.

There is a demo version of SoftF/X v2.5 available for download from Byte by Byte's Web page at http://bytebybyte.com.

The SoftF/X v2.5 demo runs natively on Windows 95 and Windows NT. Version 1.2 or higher of the Microsoft Win32s libraries are required to run under Windows 3.1.

3D F/X

Washington based Asymetrix (owned by Microsoft co-founder Paul Allen) has a low-end (US$69) 3D program we have only tested briefly, but we've seen enough to know that it looks like a good choice for beginners (a recent *Polish* magazine review said as much, and gave it a very positive recommendation). Like trueSpace, 3D F/X supports real-time solid modeling and has an easy-to-use interface. We've seen it bundled with some video cards, such as the Millennium card from Matrox.

POV Ray 3.0

If freeware's more your speed, check out the povray site at

http://www.povray.org/
or
ftp://ftp.povray.org/pub/povray/Official/

The Ray Tracing Frequently Asked Questions (FAQ) file does a good job of describing POV Ray, so I'll quote from it here:

"The Persistance of Vision Ray Tracer (POV Ray) is an all-round excellent package, but there are two things that particularly make it stand out above the rest of the crowd. Firstly it's free, and secondly the source is distributed so you can compile it on virtually any platform. It's without doubt the most used package among the comp.graphics.raytracing crowd and well worth checking out if you haven't already.

POV Ray is based on David Buck's original ray tracer DKB Trace and has been (and still is) developed and supported by a whole crowd of people on CompuServe Graphics Developers Forum (GO GRAPHDEV). For more info, see the POV Ray docs."

You can find the entire FAQ at http://www.povray.org/documents/cgrFAQ1.html

Version 3.0 of this popular 3D package adds realism to rendered scenes via complex finishes, procedural textures, focal blur, and atmospheric effects, such as mist, fog and rainbows. New textures expected in the 3.0 release include realistic woodgrain and marble textures. ❑

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Playing with 3D Phantoms

TCP STAFF

Toronto-based Alias|Wavefront has introduced Project Maya, a next-generation software development project that will allow humans — actors or games players, for example — to interact in a realistic way with 3D rendered images.

Image courtesy MediaLab, Franco Atiancian

"While the industry has made amazing advances over the years, we have reached a critical point where quantum leaps are necessary to provide the kind of expressive and extensible technology that artists, animators and designers want and need," stated Alias president Rob Burgess in a prepared statement. "With Project Maya we are now establishing a new foundation that will lead our customers and the industry into the next level of digital content creation."

The vision that the Maya project holds is one where

- "synthetic" actors, creatures and environments become standard fare in TV, movies and video games
- directors interact with computer-generated characters in the same way as they do with live actors
- digital environments replace physical sets and props
- new products are designed and test marketed within virtual environments exclusively through the use of conceptual design technology

Alias | Wavefront stresses that the technology to create this would be readily accessible and largely "invisible" tools for the artist.

The company expects Project Maya to have impacts on three areas of computer graphics. First, the level of realism possible would increase. Secondly, the speed of production of high-quality computer graphics would be enhanced, and thirdly, the "creative experience" of digital artists would be boosted.

Project Maya has been under development for more than two years. The company projects that the first products will arrive within a year.

Project Maya was unveiled at SIGGRAPH '95 in Los Angeles in August, where Alias | Wavefront also announced major releases of its other products, including Alias Animator Version 7.0, an entry-level 3D package, and version 7 revisions to its professional Alias Studio, AutoStudio and Alias Designer products. As well, the company introduce a CAD visualization package called ExploreVision. ❑

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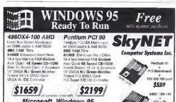

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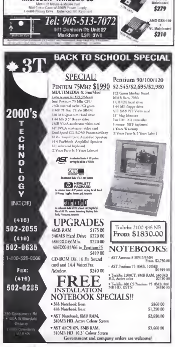

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WHAT'S NEW IN 3D

Picking a 3D Platform

BY GRAEME BENNETT

So, what hardware platform is best-suited for 3D applications?

Whew — there's a loaded question. There are many issues to consider: processing speed, floating point math performance, multitasking, system robustness and of course the software itself. In that light, the clear answer is "a high-end, RISC-based Unix workstation." (SGI workstations are well supported platforms in the area of high end 3D software and workstations are widely used in "serious" 3D production environments.)

However, if spending $8000 or so for your typical workstation-class software program and another $20,000+ or so for the hardware isn't quite your speed, you might consider joining the rest of us down in the world of Pentium PCs, PowerMacs and high-end Amigas. In this domain, each platform has its strengths.

PCs enjoy a good price/performance ratio, inexpensive storage options, cheap and plentiful PCI video and I/O cards, as well as an abundance of software. Running Windows NT, they also have the ability to support more than one CPU — a function known as symmetrical multiprocessing (which your software must also support, as Adobe Photoshop does, to take full advantage of SMP).

Power Macintoshes bring the performance of RISC and the friendliness of the Mac GUI together. 3D software is fairly plentiful and performance is good to very good. PowerPC-based Macs, with their fast floating point calculations, are well-suited for 3D applications. However, our tests suggest that the 3D software and hardware 3D accelerators are generally more sophisticated and plentiful on the PC side, so things tend to balance out.

I have used most of the available 3D programs for the Mac. At this time I use Specular Infini-D and Ray Dream Designer the most. They both have good performance but limited features compared to current PC offerings. However, the fact that code from Specular and Ray Dream is part of CorelDraw 6.0 bodes well for Corel's probable success with its new release. At the very least, I'm going to enjoy it.

Amiga computers, primarily thanks to the success of the Newtek Video Toaster and their prowess at video production-related tasks, have also proven to be quite popular platforms in the world of 3D. Unfortunately, the waning marketshare of the Amiga itself has led to the inescapable fact that most 3D software currently available for the Amiga will not be updated in the future: most companies that started off supporting the Amiga have moved on to greener pastures.

➤

What To Buy: 3D Scanning Devices

3D scanning devices, which allow you to make wireframe models from existing (clay or whatever) prototypes, have dropped dramatically in price over the last few years. These systems typically use one of three basic strategies:

- a lathe-like digitizer stand with an attached stylus that traces around a model as you rotate it. Impulse, the developer of a 3D program called Imagine (discussed below), makes a 3D digitizer called the DIGIMAX. It is very easy to use. You mount a rigid model on the post like a lathe and begin clicking away on points, and you can go back to any spot and edit it for more detail, etc. It sells for US$700.
- a 3D pantograph contraption that uses a stylus on an arm to trace around your model (or in a high-end variation, a laser scanner).
- there are also several systems where you take a series of photographs and link coordinates from one to the same point on the other, building your 3D model from the photo itself. We've even heard of an experimental product by the Valis group that claims to be able to do this automatically from a digital movie of a product being rotated.

We haven't tested any of these digitizer systems yet, but we see an increasing number of under $1000 devices in the CAD and graphics-related magazines. We'll report on this topic in a future issue.

Although we haven't room to discuss every area of the 3D scene, it's worth mentioning that a number of high-end CAD/CAM (computer-aided design/computer-aided manufacturing) systems can drive some kind of tool to carve a new prototype out of some soft material. The least expensive system we've seen is the Roland DG CAMM/3 model PNC 300, which sells for US$7995. Other CAMM/3 models go up in price (and the size of models they can produce) from there.

Contact the Roland Digital Group at 1-800-542-2307. In Ontario, call 705-728-7264.

CorelDraw with appropriate third party device drivers, currently enjoys considerable popularity in the sign business as a program to drive vinyl sign-cutting devices (the unholy marriage of a pen plotter and an xacto knife). Perhaps it will become the populist solution for 3D CAMM as well, now that it supports 3D functions. ❑

Recommended Computer Platforms
Under $3000
PC Pentium 90 or 100 with 540MB (or larger) hard drive 16MB+ RAM 15"+ monitor, Windows 95 trueSpace 2 Consider adding a Matrox Millennium graphics card ($449 w/2MB WRAM) ATI Mach 64 or Diamond Stealth 64/2001 for a significant performance boost and, if possible invest in a high-quality 17" monitor *PC Magazine* recently named the CTX 1765Gme Samsung Syncmaster 17Gli and Nanao FlexScan T2•17TS its Editor's Choices

PowerMac 5200 or 6100 16MB+ RAM, 15"+ monitor RAMDoubler Ray Dream Designer etc

Under $5000
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PowerMac 7200 or 7500 24MB+ RAM RAMDoubler Ray Dream Studio or Strata StudioPro Photoshop 17"+ monitor, etc

Continued on page **63**

PhotoModeler on Web

Photos in - models out
PhotoModeler is a Windows 3 1 program that transforms photographs into 3D models Any object that can be photographed can be modeled and the models are dimensionally accurate and detailed.

To use PhotoModeler overlapping photos are taken of a scene or an object. The photos are digitized and displayed on the computer screen and the operator marks features of interest by tracing over the photos with the mouse When the photos have been marked, the operator selects "Process" from the menu and PhotoModeler makes a 3D model from the marked photos The marks on the photos become points, lines or surfaces in a single three dimensional space. After a model has been produced, accurate measurements can be taken from it and models can be exported to 3D graphics and CAD programs.

PhotoModeler accepts digitized photos from a variety of sources including film cameras, electronic still, and video cameras.

PhotoModeler list price is US Customers. $895US, Canadian Customers. $1,295CA (plus GST & PST) ❑

Contact: Eos Systems Inc. 205-2034 West 12th Ave Vancouver, V6J 2G2 tel:604-732-6658 fax:604-732-6642
e-mail. questions@photomodeler.com

What to Buy: Translators

You can translate between 3D file formats with a commercial product called Inter Change Interchange requires Microsoft Windows 3 1 or Windows NT, with at least eight extra megabytes of memory recommended Retail price $495

Syndesis also sells a product called 3DROM which is a huge collection of 3D models in several popular formats (3DS, Imagine, Lightwave DXF etc)

Contact. Syndesis Corporation 235 South Main Street Jefferson, WI 53549 Phone 414.674.5200
http //www webmaster.com.80/syndesis/

WCVT2POV V2 6c is an MS-Windows program by Keith Rule (keithr@europa com) that converts between various 3D file formats WCVT2POV can currently import 3D studio Wavefront, NFF DXF TrueType Fonts, RAW triangles and some other formats It can export 3Ds asc, Poway, NFF DXF, VRML, Wavefront, Open GL 'C code fragments, RAW triangles and some other formats.

Wcvt2pov will run on a Win95, Win NT or a Win32s based IBM PC WIN32S must be installed first if you want wcvt2pov to run on a WINDOWS 3 1 IBM PC

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TOSHIBA

486 DX2/50/260 2 PCMCIA

$1899

features

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Product Code	List Price	Our Price
T2100	$2899	$1899

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Great Value

features

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IBM THINKPAD

COLOUR 486 DX 4/75

$4136

New Model

features

486-Dx-4/75 □ 4 Megabytes Ram □ 10.5" Active Trackpoint □ 2 PCMCIA □ Vesa Local Bus 1M 340 Meg HD Dos/Windows SW

Prod of Code	IBM Price	Our Price
[illegible]	$4499	$4136

Zenith

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features

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NEC

486 DX 4 75 Colour

$2652

DX 4/75

features

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Product Code	List Price	Our Price
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(MODELS NOT AS ILLUSTRATED)

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PCMCIA OPTIONS

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Toshiba 2130CT	486 dx4 75	8/500	$6789	$4245
Toshiba 4800CT	486 dx4 75	8/340	$5999	$1515
Toshiba 4900CT	Pentium 75	8/772	$7899	$6871
Toshiba 400 CS	Petium 75	8/810	$9999	$4963
Toshiba 400 CT	Petium 75	8/810	$9500	$6150
Toshiba 610 CT	Petium 90	8/790	$9699	$6150

Digital Equipment			S.R.P	NBS
HighNote	486 DX4 75	340	$4999	$4710
HN Ultra	486 DX2 50	340	$7995	$4076

Texas Instruments - Lower Prices				
TM4000 M	486 DX 4 70	4/340	$4999	$4443
TM5000 M	Pentium PC1 10.5	8/500	$5999	$5309

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ASCENTIA 910	486-75	700	Active	$6299	$5610
ASCENTIA 950	P-75	8 500	Passive	$5890	$5136
ASCENTIA 950	P-75	8 800	Passive	$6299	$5522
ASCENTIA 950	P-75	8 1.2g	Active	$7999	$7329

COMPAQ CANADA (Rebates)			S.R.P	NBS
Compaq Contura 420	dx4/75	8/420	$3999	$3480
Compaq Contura 420	dx4/75	8/420	$5499	$4896
Compaq Contura 430	dx4/100	4/520	$6699	$3917
Compaq Contura 430	dx4/100	8/720	$6599	$4026
Compaq LTE 5000-cd	P 75	8/800	$N/A	$Call
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Versa 4000	Pentium 75	8/540	$5499	$4614
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IBM THINKPAD				NBS
Thinkpad	370C	10.5 Active	486 dx 4/75	$4620
Thinkpad	370C	10.5 Active	486 dx 4/75	$4880
Thinkpad	701 CS	Butterfly	486 dx 2/50	$3924
Thinkpad	755 CE	10.4 Active	486 dx 4/100	$5880
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Picking a 3D Platform

*Continued from page **61***

Renault uses Alias | Wavefront's AutoStudio to design prototypes and reduce product development cycles. Illustrated is one of six City-Fleet vehicles designed by Renault. Each design took about four weeks to complete.

Under $10 000
(PC) Look for faster CPU performance, more RAM, storage and software, 3D digitizer, video output card, 8MB WRAM upgrade for Millennium card, etc. Consider adding or substituting Autodesk's 3D Studio, especially if you qualify for the student pricing and/or want a job skill that's in demand.

(Mac) Any PowerMac is a good choice for 3D work, but don't scrimp on RAM. Throw at least 32MB RAM into your machine (this applies to PCs too) to really make modeling and rendering fly.

Over $10 000
(PC) Consider a non-Intel platform (Alpha, etc.) running Windows NT or Unix. Look also at entry level workstation offerings from SGI, also around this price point.

(Mac) Get the fastest PowerMac available, such as the 8500 (about C$8300) or 9500 (about $10 800) models, or one of the Mac clones from Power Computing. Consider the EAS software. It doesn't get any better than this on the Mac.

Performance notes: The PowerPC RISC processor in PowerMacs is good for ray tracing, but so is a 133MHz Pentium, and as mentioned above, the hardware acceleration you get on a PCI bus PC with a Matrox Millennium graphics card (about $449) and supported software is nothing short of amazing.

Good luck in your choice. Most people we know use more than one 3D program.

Happy modeling. ❑

Resources

Here are some good sources of 3D models.

Internet FTP
avalon.chinalake.navy.mil /pub
ftp.netnet.net /pub

Other Stuff
The Computer Paper has some VRML related models and info on our web site at http://tcp.ca/gsb/VRML

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HP 5MP	$1565
HP 4+, 600 dpi laser	$2025
HP 320 Inkjet portable&feeder	$515
HP OfficeJet print/fax/copy	$999
HP 550C Inkjet, Mac	$595
HP 560C Col Inkjet	$595
HP 600 Inkjet	$425
HP 660C Col Inkjet	$595
Lexmark WinWriter 100 ink	$415
Lexmark WinWriter 150C	$525
Lexmark ExecJet IIC col ink	$495
Lexmark Optra R 1200 dpi, 2MB	$2095
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1010CT	720	8	Pentium-90	9.5 True C	$6100
T2100	260	4	486 DX2/50	9.5 Mono	$1999
T2100CT	350	8	486 DX2/50	8.4 Hi-Col	$3095
T2130CS	500	4	486 DX4/75	10.4 Hi-Col	$3655
T2130CT	500	8	486 DX4/75	10.4 Hi-Col	$4499
T2150CDS	500	4	486 DX4/75	10.4 Col	$4095
T2150CDT	500	8	486 DX4/75	10.4 Hi-Col	$5045
T4900CT	810	8	Pentium-75	10.4 Hi-Col	$6875
[illegible] Docking Station 4					$899

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486DX4/100	10.4 9.5 Col	4	520	$3575
486DX4/100	10.4 9.5 Col	4	810	$3775
486DX4/75	10.4 Act. Col	8	520	$4370
486DX4/75	10.4 Act. Col	8	810	$4575
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486DX4/100	10.4 Act. Col	8	810	$4495

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Pentium-75	9.8 Col	8	1.2G	$6400
Pentium-75	Active Col	5	500	$6000
Pentium-75	Active Col	8	1.2G	$7500

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370C	486DX4/75	540	10.4 Col	$4275
370C	486DX4/75	540	10.4 Col	$4875

755CE & 755CD series-8 MB RAM

Model	CPU	HD	Video	Price
755CE	486DX4/100	340	10.4 Hi-Col	$5720
755CE	486DX4/100	540	10.4 Hi-Col	$5999
755CE	486DX4/100	810	10.4 Hi-Col	$6499
755CD	486DX4/100	540	10.4 Hi-Col	$6599
755CD	486DX4/100	810	10.4 Hi-Col	$7099
755CV	486DX4/100	810	10.4 Hi-Col	$4495
755CV	486DX4/100	810	10.4 Hi-Col	$6499
755CX	Pentium-75	540	10.4 Hi-Col	$6699
755CX	Pentium-75	810	10.4 Hi-Col	$6899
755CX	Pentium-75	810	10.4 Hi-Col	$7499

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701C	DX2/50	4/360MB	10.4" Act	$4899
701C	DX2/50	4/540MB	10.4" Act	$5149
701C	DX4/75	8/540MB	10.4" DSTN	$5143
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DX4/75MHz	810MB	4095.00	DX4/100MHz	810MB	4245.00

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Real3D

Real 3D is a program that has been around for years. Developed in Finland and marketed by Ontario based RealSoft, Real3D first made its appearance on the Amiga platform. Real3D was, I believe, the first program on any platform to feature inverse kinematics. This feature allows you, for example, to pull on a finger tip and accurately control the kinematics of the joints going right back to the pelvis.

Now available for Windows 3 1/3 11, Win95 and WinNT (Intel and DEC Alpha) Real3D touted as "the most powerful spline modeler developed for any desktop PC" is best known for its excellent spline model export to 3D Studio, photo-realistic rendering (ray tracing), and high-end animation/simulation features (particle collision detection, procedural behavioural skeletonal control, inverse kinematics, etc.)

At the moment, the company is in the process of releasing a V3 0 update to the program and has reduced V2 5's price. There is also an attractive upgrade path to V3. (All of the above-mentioned features are present in version 2.5 and v3 0)

In short, Real3D is a full featured 3D modelling, rendering and animation program, appropriate for the demanding CG artist/animator/designer.

Although there are too many features in virtually any one of the programs mentioned in this article to do more than scratch the surface, here are some unique features in Real3D v3 0, as excerpted from info we obtained from the company's Web site (http://www.win.net/~real3d)

A SURFACE ANIMATION technique automatically detects surface and friction between animated objects. For example, a character that is animated to walk will automatically detect the floor, detect any variances in the floor object, be held to the floor with gravity and derive its forward motion automatically because of the friction between the floor and feet. No slipping feet here! Or, put a spinning wheel on the ground in Real 3D and it will automatically roll at the proper speed. You can even steer a model of a car by just turning the front wheels.

New COLLISION DEFORMATION done with ANIMATED SHRINK WRAPPING method allows some very special effects. To quote from the company's promo literature, you can create a girl character animated to stroll down a sandy beach, watch her leave subtle footprints in the sand. But what about that beach dress she's wearing? Yes, it will automatically conform and follow her body movements perfectly! This is a very powerful modelling tool.

New SURFACE COORDINATE SYSTEM for enhanced spline modelling. With Real3D, you can also take any surface and draw a spline curve that will conform to the contours of the surface — great for seamlessly blending spline objects together, such as an arm to a torso, or laying a road over uneven terrain.

The 3 0 release also adds a new Post Processing System, with effects such as Glows, Lens Flares, 2D Particles etc.

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for enhanced spline modelling. With Real3D you can also take any surface and draw a spline curve that will conform to the contours of the surface — great for seamlessly blending spline objects together, such as an arm to a torso, or laying a road over uneven terrain.

The 3.0 release also adds a new Post Processing System with effects such as Glows, Lens Flares, 2D Particles, etc.

- A surface coordinate system allows you to enter 3D points just by clicking points from object surfaces. When this function is used the mouse actually moves along surfaces of underlying objects instead of the planar input plane. For example, to create a motion path for a snake wriggling over a mountain, just draw a curve along a surface representing the mountain.
- The Reflect function allows you, for example, to position a light by defining where you want a highlight to be on an object.
- Fast background image blitting allows accurate perspective matching, rotoscoping, etc.

Like almost all other 3D software vendors, RealSoft has a web page and FTP site. Company spokesperson Adam Godfrey says RealSoft will have a demo version posted to the FTP site in the very near future. At the moment, you'll find a number of beautiful sample images there that show off the possibilities of this powerful program.

Contact RealSoft International at info@real3d.win.net to receive a full list of v2.5 and v3.0 features.

You can review the product's features at http://www.win.net/~real3d/

One of the many sample images at RealSoft's ftp site, this image shows off the realistic textures and shadows possible with Real3D

3D to the Max

Market leader Autodesk has announced 3D Studio Max, characterized as "the next generation of 3D Studio for Windows NT." At Siggraph in August, Autodesk showed Max and an interesting plug-in called Biped that enables free form animation of any two-legged character. Autodesk says 3D Studio Max and Biped will ship in the first part of 1996 but did not disclose pricing information. However, the company stated that because Max is an entirely new product, it would offer a series of special offers to its existing customers rather than a traditional upgrade program. 3D Studio R4 customers will be able to purchase Max for C$684, owners of previous releases of 3D Studio (commercial) can purchase Mac for $1374. Like 3D Studio, the company says Max will be copy protected via a hardware lock.

Contact Autodesk for more info: 1-800 879-4233 or 905-946-0928. On CompuServe: GO AMMEDIA

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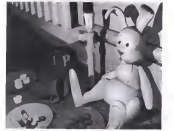

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Vidi Presenter Pro

Vidi Presenter Pro (US$1995) is a well-regarded Mac program that earned four stars in *MacWorld* magazine's May 1995 review. Presenter Pro, said to be the "oldest living Macintosh 3D modeling, rendering and animation package," has a couple of unique features in its 3.0 release: integrated 3D sound, as well as support for those "hidden 3D" images that have become so popular.

The *MacWorld* article praised the program's excellent modeling tools and improved animation controls. On the down side, however, the *MacWorld* review chided Vidi for the program's lack of support for Phong rendering and some import/export functions that weren't working. These features were expected to be working in the 3.1 release.

A demonstration version of the program is available.

Contact Vidi: 818-358-3936

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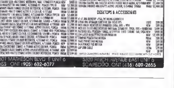

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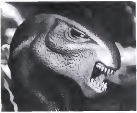

Dinosaur head produced in Real 3D B-spline model and texturing by Grant Neisner

the other hand, [illegible] heard its user interface characterized as "confusing," "complex" and "unnecessarily [illegible]." One of Imagine's greatest faults, some users report, is its inability to create shadows in scanline. The raytrace mode is very fast, however.

There are many other 3D programs, including some great ones, no doubt, we haven't seen or heard enough about to comment on with any authority. Our apologies to the companies we missed. Next time, perhaps...

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The Computer Paper *Labs Survey of Multifunction Devices*

BY CHRIS FISHER AND JEFF EVANS

We hear a lot of talk about the computer as an "Information Appliance." Apple Computer and Microsoft have, at various times, taken to making prophetic videos showing one omniscient, omnipotent gadget (running their respective operating systems) that can bring information from anywhere to its user, and allow the user to communicate with other people or send information to any point on the globe.

In reality, if you just look at any personal computer user's desk, you can tell that the digital world isn't quite that tidy Instead of a single "info appliance" the average home- computer workspace resembles a whole hardware department. A very well-equipped computerist's clutter might consist of desktop computer monitor keyboard mouse scanner laser or inkjet printer, digitizing tablet telephone, fax machine power bar external modem disk boxes and lots of cables. The main culprits in the gadget sprawl — at least the ones that take up the most real estate — are the scanner, fax printer modem and phone

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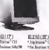

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*Continued from page **68***

what features are important to you. Even if you're only in the market for a plain paper fax machine the low cost of these gadgets make them worth serious consideration.

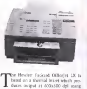
Brother MFC - 4500ML

Brother seems to have found the formula for great home market products. Brother's line of lasers (reviewed last month) are irresistible for the price sensitive quality conscious consumer in all of us.

The Brother MFC-4500ML upholds Brother's good name by giving us the same 6 page per minute 300 dpi laser printer as the award winning HL-630 and HL-641. The unit sends and receives faxes at 9600 bps, which is not the fastest but adequate for duty in the home office. However the proliferation and low cost of fax machines and fax modems rated at 14,400 bps makes one wonder why Brother would skimp in this area, in the name of a trivial cost reduction.

Scanning capabilities are top notch for a multifunction device at 400x400 dpi. On the downside this unit needs to be connected to your computer via both a serial and parallel connection. This dual setup could cause some nasty connection problems for those who want to install a modem for data communications. Many people have referred to these devices as Swiss Army Knives — Brother's competition probably sees the MFC-4500ML as a veritable legion of doom.

Hewlett Packerd OfficeJet LX



The Hewlett Packard OfficeJet LX is based on a thermal inkjet which produces output at 600x300 dpi using resolution enhancement technology. The printer component produces output at 2.5 pages per minute in this standard mode and at 3 pages per minute in fast mode (300x300 dpi). The OfficeJet's group III compatible fax can store up to 55 speed dial numbers, operates at a poky 9600 bps and has an image memory of 24 pages. Scanning and copying capabilities are somewhat low end, operating at 200x200 dpi with 32 scales of gray.

In a nutshell, we would say that the HP OfficeJet LX is not the hottest multifunction device on the market in terms of features. However, it is competitively priced, well constructed and backed by one of the best respected companies in the computer industry.

Lexmark Medley

The Medley has been selling in the US since April and was introduced to the Canadian market in July of this year. The Medley is unique among the multifunctions in that it offers a 600x300 dpi color ink jet printer. The color from the printer component, with its palette of over 16 million colors, is decent but printing is slower than a B&W laser. Color output on copier quality paper is good, though if you use the appropriate coated stock for presentation-quality hard copy it is very good.

Unlike some current color printers such as the HP 850C, which simultaneously mount a separate black cartridge along with a 3 color ink cartridge on the print mechanism, if you wish to use the Medley for just monochrome printing you have to swap ink cartridges. This can be done easily and quickly, but it would be better if swapping cartridges weren't necessary.

➤

Clark Christensen

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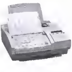
Images are scanned at 300 dpi with 256 scales of gray producing usable copies of text art pictures though not high end desktop publishing quality The one area where the Medley shows no compromise is in faxing The 14 400 faxing capabilities are just what the doctor ordered It is surprising with the proliferation of 14 400 bps fax modems, that Lexmark is one of very few companies to offer this speed standard in its multifunction unit

As well unlike many other multifunctions, the Medley requires only a parallel interface to the computer to provide you with all its functionality This leaves you with an extra serial port for use with a modem or some other serial device All in all if your wish list includes a color ink jet a plain paper fax machine an image scanner and a single sheet copy machine you need look no further

Xerox 3006

This sleek looking assemblage is Xerox's top of the line multifunction device The unit is based on a monochrome ink jet that prints 300x300 dpi at 3 ppm The inkjet is not as fast or as clear as a laser based system but for receiving faxes and in-house copies it is quite adequate The 3006 comes with fast 14 400 bps faxing capabilities and can store up to 35 pages in memory with its standard complement of memory A memory upgrade allows it to store up to 115 pages.

The PC faxing option is accomplished through a Class II interface—Delrina's Winfax lite is bundled with the kit A battery backup in combination with the memory upgrade will allow it to store documents in memory for 24 hours in case of a power outage



The unit allows Twain compatible applications to use the Xerox 3006 as a scanner source for 300x300 input Xerox Textbridge software for optical character recognition is bundled with the system to take advantage of its scanning capabilities This unit is marketed to the corporate world including features such as mail boxes security option and 100 speed dial numbers As with many of the multifunction devices, the Xerox needs to be connected to the PC via both serial and parallel cables in order to use all of its capabilities

And The Winner Is

Editor's CHOICE

The Lexmark Medley, with its outstanding color printing, fast faxing, and 256 gray scale scanning features, for only $1 399 is the winner of the *Editor's Choice*, and is a unique and excellent buy

It was unusually difficult to select a winner in the multifunction product category, since all of the devices tested were of excellent quality and displayed terrific integration of a number of media (print, telecom, scanning/digitizing) The other model that stood out in terms of its usability and performance for the SOHO worker was the Brother

The Brother offers excellent, fast laser output and very good graphics scanning. Unfortunately, the suggested list price of $2600 for the 4500 model is fairly hefty However, we've seen the only slightly less capable (less RAM) model, the 2500, in local stores for about $1,200 and it is certainly worth a look. ❑

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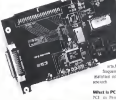
All You Ever Wanted To Know About PCI

BY PAT DUFFY

In May of 1994, I was looking to upgrade my existing ISA-based PC. I'd heard of PCI, and had learned a little of what it could do.



Faster data transfer is one benefit of PCI. Future domain's SCSI-2 PCI card is auto configuring

Many of its claimed capabilities intrigued me such as auto configuration of new cards (true plug and play) high data transfer rates and proper 32-bit bus mastering I wanted to find out more about it and so became active in the OS/2 newsgroups on the Internet in an effort to find out what worked and how This article is largely taken from the PCI frequently asked questions list which I maintain on the Internet as a result of my research

What is PCI?

PCI or Peripheral Component Interconnect, is briefly a new way of interconnecting the peripherals (cards you plug into the motherboard) with each other the system memory, and the CPU PCI offers all of the following features.

a) Auto-configuring All components which plug into the PCI bus will be configured by the BIOS or by an operating system which supports plug and play (for example Windows 95) Thus eliminates the need for setting jumpers, etc on new cards which you install

b) IRQ sharing If you've ever installed a new card in a system which had many cards in it already you may not have had a spare interrupt to give the card This is problematic in any operating system which uses interrupts (for example OS/2 Windows 95, or any of the many varieties of Unix) Now with PCI and an operating system which supports it (for example Windows 95 or OS/2 Warp), you can have many cards sharing a single interrupt.

c) High bus bandwidth The PCI bus runs at a maximum rate of 33 MHz (66 MHz in

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PCI 2.1, see later) and is capable of transferring 32 bits (4 bytes) per clock cycle for a maximum throughput of 132 (264 in PCI 2.1) MB/sec (though real implementations of PCI don't achieve the full transfer rates because of technical limitations).

d) Multiple functions on one card. The PCI specification allows for up to 8 functions (video, sound, ...) on a single card.

e) The ISA bus may only run one busmastering device at one time. This limitation is lifted with PCI; several busmastering devices may be used at the same time on the PCI bus.

There are three main components to a PCI system: The PCI peripherals (for example video cards, SCSI controllers etc.), the connectors to the PCI bus (where you plug the cards into the motherboard) and the PCI chipset, which handles inter-card transactions and transactions between the cards and the rest of the system. The PCI chipset will also allow other buses (including other PCI buses) to be bridged to the PCI bus. This allows older cards (for example sound cards etc.) to be used when there are no PCI equivalents by bridging an ISA bus to the PCI bus.

PCI cards have three essential requirements for operation: a source of power, an address on the PCI bus, and an interrupt. For power, there are two common standards in PCI: 3.3 volt and 5 volt. Cards exist which may use either voltage, and the connectors to the PCI bus are slightly different for the two (the "key" in the slot is switched for the two types of cards). The PCI specification also allows for dual-voltage cards, which may be used in either type of connector.

PCI cards get the appropriate addresses and interrupts to use via autoconfiguration by the PCI chipset. Because they autoconfigure, PCI cards will hold configuration information somewhere on the card, usually on a chip on the card itself. (It should be noted that some less expensive PCI cards have their configuration set via jumpers, and so cannot really be called autoconfiguring.)

The PCI specification also allows for a single PCI card to have multiple functions (as does VL, for example). However PCI cards are unique in PC architecture because of the number of integrated functions they may contain: a PCI card may have up to eight unique functions. You could, for example, have a single PCI card which integrated sound, video, networking and disk I/O.

To provide a reliable connection between card and motherboard, the PCI bus has its own special connector (ironically enough, these connectors are identical in appearance to the MCA connectors used in PS/2 machines.) Because there are two types of PCI cards commonly in use (those which require 3.3 volts and those which require 5 volts) there are two types of connectors (which differ only in the position of the key in the slot). Some cards are designed to operate in either slot (this is covered in the PCI specifications) and most motherboards currently shipping come with 5 volt slots.

The cards are linked to the rest of the system and to each other by the PCI chipset. It is the chipset which directs I/O requests to the appropriate slot and takes the data provided by a PCI card (for example a disk controller) and directs it to the appropriate point in the rest of the PC. If transactions must take place between PCI cards, the PCI chipset manages this task as well. The PCI chipset also forms the link between the PCI bus and any other buses on the system such as, for example, an ISA bus, so that other cards may be used when there are no PCI equivalents. This bridging capability may be also be used to attach other PCI buses if extra PCI slots are required.

The standards to which the components above adhere are governed by the PCI specification. There are two revisions of the PCI specification currently in common use: 2.0 and 2.1. Revision 2.0 is implemented in older generation motherboards (as a rough guide, an older generation motherboard may be considered anything which was introduced prior to April 1995). It has all the features and limitations discussed above.

Revision 2.1 is now widely available in the new generation of motherboards. It is backwards compatible with PCI 2.0 to the extent that if a 2.0-compliant card is put in a 2.1-compliant slot, the PCI bus will only implement the 2.0 feature set. The 2.1 standard supports a maximum bus speed of 66 MHz.

Not all PCI implementations are created equal. Many PCI chipsets, for instance, do not support an (optional) feature called byte merging, in which writes to sequential memory addresses are merged into one PCI-to-memory operation. When byte merging can occur, the PCI bus is actually capable of greater data throughput than a 60 MHz Pentium. Some motherboards will also automatically configure the PCI bus for you

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eliminating the need to fiddle with any jumpers of any kind during motherboard installation or to set up the PCI bus interrupts in the BIOS (though this need only be done once in general).

PCI Bus vs Other Architectures
Industry Standard Architecture (ISA): It should be apparent both that the PCI bus is not compatible with ISA (even the connectors for the two buses are different) and that technically PCI is much more advanced than ISA. The ISA bus runs at a slower speed (8 MHz on most systems, though on many PCI/ISA systems with enhanced ISA timing the bus may be run at 10 or 11 MHz), does not allow for multiple busmasters (only one may be on the bus at any one time) and, because of the DMA controller it uses, will not allow peripherals which employ DMA (for example, a busmastering SCSI controller) to directly address memory above 16 MB. ISA will also not autoconfigure, and will not share interrupts.

The ISA bus will support a maximum real world data transfer rate of about 5 MB/sec (16 MB/sec is the theoretical maximum; burst transfer rates may approach about half of this), and uses a 16 bit data path.

The ISA bus, in spite of its technical inferiority to PCI, still has a place in PC architecture, however; certainly you don't need PCI type bandwidth for 16 bit/44.1 kHz digital audio, and serial ports are hardly taxing. For that matter, neither are 900+ Kb/s CD ROM and tape drives, or Ethernet 10Base-x. However, use of these in combination with several other cards on the same (ISA) bus (video, disk I/O, etc.) will severely limit performance on most systems.

Extended Industry Standard Architecture (EISA): The EISA bus attempted to overcome some of the limitations of ISA by extending it to a 32 bit bus and allowing for proper busmastering. EISA has the advantage that it is backwards-compatible with the large number of ISA based cards in existence, but with the resulting disadvantage that it is slower than it could be, as it transfers 32 bits per clock cycle but runs at 8 MHz (for a theoretical maximum of 32 MB/sec). The EISA bus also does not autoconfigure, though it is capable of sharing interrupts. EISA never really caught on, and appears to be fading in popularity.

VESA Local Bus (VL Bus): The VL bus was designed to overcome the speed limitations of the ISA bus. It talks directly to both the CPU and the memory (instead of having this process managed by a chipset like that used in PCI), and typically runs at the external clock rate of the CPU (up to a maximum of 40 MHz, though there are many boards which run at 50 MHz, strictly a violation of the VL specs). As it is a 32 bit bus, the high speeds at which it runs can make for some very fast data transfers.

The VL bus has its limitations, however. For one, it truly is a "local bus," meaning that it talks directly to memory and to the CPU with no intervention from any bus arbitrators. Because of this, there is the possibility that one bad card could cause serious damage to the system. Also because of the local nature of the bus, busmastering on the VL bus causes the CPU to be blocked from accessing RAM while the busmaster accesses the RAM. VL is limited to two or three slots per bus for power-consumption reasons. The VL bus, because it is simply an extension of the ISA bus, also does not support autoconfiguring or IRQ sharing.

One additional problem not often mentioned is the physical length of the VL card connectors. They are quite long, and as a result, flexing the motherboard (as may occur when an older case is moved) may cause the VL part of the card to become partially unseated, no matter how well clamped in it is at the ISA end. By comparison, PCI connectors are relatively short.

MicroChannel Architecture (MCA): The MCA bus was introduced in 1987 by IBM to overcome the limitations of the ISA bus. As a result, the MCA bus has very similar capabilities to the PCI bus. That is, it supports IRQ sharing, multiple busmasters, etc., just as does PCI. However, MCA does not autoconfigure in the same way that PCI does (it must be done via a reference disk). The MCA bus used on PS/2s typically runs at 10 MHz, and supports transfer rates of 32 bits/clock cycle (maximum), for a theoretical maximum rate of 40 MB/sec. The maximum possible data transfer rate for MCA is 160 MB/sec, though running the bus at this speed would break compatibility with older cards.

MCA can be made to run as fast (or faster) than the PCI bus in some cases, as it has certain features which PCI does not. Most notable among these features is "streaming," whereby the 32-bit address and data buses are both used to carry data (PCI has only one 32-bit bus for both addresses and data and so cannot stream). In addition, the MCA bus may accommodate more slots in a single bus than PCI: up to 10 may be present, so that a bridge to another bus is generally not necessary.

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Considerations When Upgrading To PCI
The first thing you must do when choosing your new PCI system is pick the motherboard which best suits your needs. For example, if you have VL cards which you do not want (or cannot afford) to replace, you'll want a board which has VL slots. Likewise existing EISA cards require a board with EISA slots. All different types of motherboards (those with PCI and ISA/EISA/VL slots) can be made to work well, and many do. Generally PCI/ISA motherboards are all well implemented, as are PCI/EISA.

The problem comes, however, when dealing with PCI/VL boards. Many (if not all) of these let the VL bus talk to the CPU, and then bridge the PCI bus to the VL bus. Doing so causes a performance hit on the PCI bus.

In any case, do not skimp on your motherboard. It is the single most important part of your system, and your operating system and software will only operate as well as the board itself. Stick to name-brands (currently Asus and Intel are well known and work well) or if you can't find one of these boards, at least ask what PCI chipset the board uses. Currently the Intel Triton PCI chipset is popular for Pentium systems, and the Intel Saturn II (rev. 4) and SiS revision 85 chipsets are popular in 486 systems.

The next thing you must do is decide which of the cards from your existing system will work in your new system, and which should be replaced. Assuming the cards you used in your old system were all of reasonable quality and sound implementation, all of what you had before should still work now. *Should* is the operative word here. If you're unsure, ask to try the card in the new system.

Some cards both do not need replacing and could not be replaced in any case. There are no PCI sound cards, so you definitely do not need to look into replacements for any that you might have. As well, because of their low bandwidth, I/O cards can generally be re-used (serial/parallel/game), as can I/O cards dedicated to low bandwidth peripherals such as CD-ROM and MO drives. Before keeping your old I/O cards, though, check to make sure your motherboard does not already have the I/O built in. Many PCI motherboards do.

Some cards, even though they might still work, should be considered for replacement to take full advantage of the PCI bus. If you have a busmastering ISA SCSI controller (for example, an Adaptec 1540 or 1542), replace it with a PCI-equivalent one. Not only will it allow for faster data transfers, it will also make moot the problems which the ISA has with 16 MB memory limitations and busmastering controllers. You will also get proper busmastering. The upgrade need not be expensive either. PCI SCSI controllers based on the NCR 53c810 chip are available for less than $100.

ISA-based video cards are also a prime candidate for replacement. The higher bandwidth of PCI will allow for faster screen draws when running at high color depth, and you won't need to worry about setting or unsetting memory apertures or any of the many card-configuration issues common with the ISA bus.

You may also want to upgrade or need to replace your existing RAM for your new system. There are two main types of RAM common for PCI systems: conventional DRAM and EDO RAM, which many vendors refer to with names like "dynamicache RAM" etc. EDO RAM is, in reality, a slightly modified version of regular RAM.

The EDO in the name "EDO RAM" is an acronym for "Extended Data Out." This means that the RAM can output data for longer periods of time than conventional DRAM. It does this by holding data on the outputs of the DRAM while preparing for the next read operation. As a result, there is an approximately 20 ns overlap between one read and the next.

> **Do not skimp on your motherboard. It is the single most important part of your system**

The fact that EDO RAM can output data for a longer period than conventional RAM has several immediate results. The consequence of most concern to multitasking OS users is an artifact of the multitasking ability of the OS. When an OS switches between tasks, it must load the new task into memory. Quite obviously, the faster it can do that, the faster the task-switching will be and the smoother the system will seem.

To take advantage of the enhanced capabilities of EDO RAM, however, there must be support for it in the PCI chipset used in your new motherboard. Not all chipsets support EDO RAM, however. Currently no 486 PCI chipsets support EDO RAM, and only two of the many Pentium chipsets support it: Intel Triton and Symphony Rossini. Check with your motherboard manufacturer or system vendor first, to make sure you do not spend extra money on RAM of which your system will be unable to take full advantage.

Obtaining Further Information
If you require more information than what is given here, the most direct way to obtain it is to call Intel, the company that developed the specification, at (800) 433-5177. This will allow you to join the PCI special interest group, and to obtain a copy of the latest PCI specification.

If you don't need the whole specification but would still like a little more information about PCI, I've found the following documents (available from Intel FaxBACK, (800) 628-2283) to be useful and relatively concise summaries. The numbers beside the titles are the document numbers you'll need to order the associated articles.

- 7048 PCI and VL bus: What are the Differences?
- 7056 PC Basics: Bus Standards Explained (ISA, EISA, VL/VESA, PCI)
- 7108 PCI Technical Description
- 7157 PCI Fundamentals

Lastly, there are the PCI documents which I post to the Internet. As I've said, much of this article is derived from the PCI frequently asked questions list which I post (along with the other documents) to comp.os.os2.misc, comp.os.os2.setup.misc and comp.sys.ibm.pc.hardware.chips. These lists are also available from the PC Benchmarks and Standards forum on CompuServe (GO BENCHMARK) and FTP sites (ftp://ftp.netcom.com/pub/ab/abe); older versions of these lists are available on the Web (http://warp.eecs.berkeley.edu/os2/workbench/work.htm). ❏

The author can be contacted at duffy@theory.chem.ubc.ca

Chasing The Notebook Train

BY ROSS MACDONALD

There's lots of new stuff working its way into notebooks, but industry insiders say "buy now" because you'll never be current.

Technology innovation and miniaturization forge ahead by leaps and bounds and the best we can do is hang our heads, buy what best meets our present needs, and to hell with what we could have had another day! Most frustrating of all is that while notebooks are incorporating more and more new goodies, their prices remain constant (more or less).

Recent purchasers may want to avoid reading further because some really nifty embellishments have been added to notebooks during the last few months, while quite a few more loom just over the horizon. The next six months are going to be infuriating indeed.

Displays

The most noticeable — and most appealing — notebook evolution has taken place in the area of displays. Not so long ago, 9.5-inch active color was the ultimate notebook screen and our nostrils freely hemorrhaged as we paid prices for that luxury that often doubled the cost of the machine. Though the price for active color notebook models remains about the same these days, 10.5-inches — that's a whopping 20 percent more screen area — has become the notebook standard for machines in what's called the premium class.

Despite the fact that 10.5 inches has only been available since last year, it's already being threatened by the newest 11.3-inch size. This giant display is just now hitting the streets but you'll find it just slightly beyond the economic reach of most. But there's hope: just as 10.5 inch screens now run about the same as a 9.5 inch did last year, industry reps anticipate a similar destiny for this proportional equivalent to notebook IMAX.

Another thing to look for, which isn't yet standard but is becoming ever more common for all color screens, is SVGA video. Simply put, SVGA equipped notebooks can generate an image resolution of 600x800 pixels instead of the current notebook VGA standard of 640x480. This difference will be most appreciated by CD-ROM multimedia and graphics power users.

An extra bonus is that larger screens and higher resolution do not increase the size or weight of the notebook itself. Just as prices have remained relatively steady, the normal weight for these portable wonders has been held back at about seven pounds (give or take). When asked how this is done, one major manufacturer's rep explained that, yes, the larger screens are slightly heavier, but that's been canceled out by considerable weight loss in other notebook components as new designs and materials are implemented.

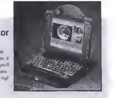
Storage

Old timers may remember the bad old days when a 10-megabyte hard drive cost about $1,200 and, because they'd been miniaturized to about the size of a 12 EEE shoe box, they were exclusively external, desk hogging dreams.

Now of course, everybody's blasé about 340 MB and even 540 MB hard-drives that are smaller than a cigarette pack. Now even 540 MB notebook owners are compelled to take that big gamble and run "doublespace" or drivespace disk compression because the latest software just gobbles up that precious drive surface at a nightmarish pace.

The industry response to such voracious appetites has been the development of shockingly huge 1+ gigabyte hard-drives that are somehow shoe-horned into those cigarette pack dimensions. Like the 11.3-inch screen, these aren't yet a standard item and will run the casual consumer into the poor house. But, like every other out-of-reach accessory, a reliable industry source predicts that 1200-plus megabytes of storage is destined to be mainstream by the end of 1996.

A warning to any current notebooker who figures on saving their pennies for a



The Drool Factor

IBM's PowerPC chip-equipped ThinkPad 850 (above) is a portable multimedia videoconference centre. If you look carefully at the picture, you'll notice a small optional video camera lense just above the screen. Price tag? Around 15 large, camera extra.

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treat come Christmas 96. Though your particular manufacturer might market these massive drives in a size and shape that matches the puny hard-disk you have now computer engineers wouldn't dream of letting you simply slide the new unit into your machine The problem is that DOS can't address more than 1024 cylinders on a hard-drive This means, in layman's terms your DOS poops out at 528 MB — it simply can't see any further

As always, there are solutions The easiest is to partition that 1+ Gig into several smaller drives with their own labels (C D, E, etc.) All you have to do is keep track of what's on what theoretical drive

Perhaps a better solution is to buy the new software fixes that are now available Called overlay linkers these relatively inexpensive packages fool DOS into somehow seeing everything that's there. The only problem is that just as with those hard-disk compression utilities you're relying on the overlay link software to be reliable and you're in for a hell of a time recovering whatever you stuck into all that space above 528 MB if it ever fails

The best solution is available to anyone with a notebook that has its Binary Input Output System (BIOS) embedded in Flash ROM — that should cover just about everybody whose notebook is less than three years old. Flash ROM chips allow new information to be burned in, either from a diskette or down the modem pipe Reputable manufacturers are already making BIOS updates available that convert the old hard-drive addressing code into something called Large Block Address (LBA) mode, which lets the operating system see all the storage space that exists Be sure to ask about all this before trying to exchange your notebook's hard-drive Buyers of new machines equipped with a 1+ Gig drive will already have this BIOS fix and Windows 95 equipped machines shouldn't have to worry either — LBA is automatic for them

Pentium CPUs

We've been seeing Pentium-based notebooks on the market for about half a year now though they're noticeably behind their desktop cousins in terms of the market share Pentium 60s and Pentium 75s are all you can get in a notebook at the moment the problem being that the faster chips (P 90 P 120 and the newest P 133) present a whole new set of problems in terms of power consumption and heat But take heart, these problems are being worked on and the faster Pentiums will show up in the notebook market very soon

To address the power consumption problem new longer life batteries are being continually researched and introduced, the latest being lithium ion (Li ION) as a substitute for the already old nickel metal hydride (NiMH) — which in turn replaced the horrid nickel cadmium (NiCd) nightmares of old.

However veteran notebook owners know that battery life is less of a predicament than a battery's obstinate development of charge memory that pesky tendency for the run time to gradually get shorter in spite of intense battery maintenance This forces virtually all notebookers to buy expensive replacement batteries all too soon after the unit is new

For the heat build-up problem engineers have come up with a really refined solution called the Tape Carrier Package (TCP) Previously all CPU chips were encased in a small but thick black box which communicated with the motherboard through rows of little pins The new TCP design sees the chip sandwiched between special thin membranes that look like scotch tape and let heat dissipate much more efficiently If you're going shopping for a Pentium notebook in the near future look for the TCP packaged chip.

Pointing Devices

The mouse cum pointer is the most common input device for any computer and it's in that department that notebook designers seem to have the most argument Clip-ons have thankfully gone the way of those old herniating 15 pound "laptops" as even economy class notebook buyers are demanding integral (built in) pointers It's almost impossible to cover the complex range of designs proposed for this simple device though an arrangement of trackball plus two buttons persists as the most popular

But even with that there are multifarious alternatives as designers can't seem to settle on just where that setup should go Just below the spacebar is very common but so is the lower right hand side of the keyboard (near the arrow keys) above the keyboard (below the screen) and on the front surface of the machine (perpendicular to the keyboard) Compaq even put a trackball setup on the lid of a recent model (a choice forced by spatial constraints inside the computer I'm told)

Then there are the trackpoint devices that look like little pencil erasers wedged between the H J Y and U keys — an efficient favorite of many

A new variation on the trackball is too subtle to see because the technology is hidden inside the pointer's mechanism. Though based on the traditional trackball and buttons current notebooks may offer a system in which the mechanical rollers that move as you roll the trackball have been replaced by electronic sensors. These pick up changes in the position of microscopic dots embedded into the ball and move the pointer on the screen accordingly This means there are no mechanical links between the ball and the machine which should translate into less skipping and less need to clean dirt off that little ball

Another alternative is what's popularly called the glidepoint First adopted by Apple some time ago this smooth blank 2 1/4" x 2-1/4" tile is just now showing up on DOS-based portables. Amazingly enough you slide your finger around on the little pad and the pointer miraculously moves the same way on the screen If you go faster it goes faster And to select you just tap the pad There are no moving parts at all and though you can get an external version for about $100, you're going to see more notebooks with a built in glidepoint very soon.

Despite all the fabulous things they're squeezing into notebooks these days the fact of the matter is that size and weight will always constitute limiting factors Despite the miniature miracles that have already been achieved — built in CD ROM drives internal stereo sound cards coupled with little internal speakers, even built-in printers — there's always been a trade-off in terms of lugging AC adapters around or, in some cases making the floppy drive external (and not always included in the purchase price) Keeping a notebook at the current popular size (approx. 11.5 x 9.5 x 2 inches) and weight (approx. 7 lb.) is the ultimate engineering challenge

However if external devices don't bother you, the advent of the PCMCIA SCSI 2 interface has opened up the full (albeit non portable) world of computing to notebookers everywhere Scanners, CD-ROM drives tape backups anything you can think of can be connected as long as it's wired for SCSI

The past year has also seen the introduction of special ports in some portables that allow ➤

you to exchange your removable floppy drive for alternate input devices. The most notable of these is a video module that not only allows you to hook your video camera or VCR to your computer but contains a TV tuner to let you keep up with that all important O J news while you work.

PC Cards are still the input method of choice however allowing notebookers to sell install and alternate between fax/modems LAN interfaces extra hard-drives sound cards extra RAM or even a Global Positioning System (GPS) receiver that taps into numerous satellites

A quick check with one major PC Card manufacturer revealed that there's nothing new on the way for this format apart from refinements to existing products. There's a hint at a PC Card video module over a far horizon but while the hardware is close to fully developed nobody's willing to take on the software end until a market has been better defined

Infra Red (I R)

This is the space-agest new notebook thing of all Through the inclusion of builtin I R senders and receivers the day of the wireless portable is at hand. Already you can communicate with at least one I R equipped laser printer on the market eliminating the need for a printer cable

But notebook manufacturers are anticipating communication with all kinds of peripherals as well as other infra-red equipped computers The most enthusiastic salivation is for the upcoming ability to exchange files between computers this way eliminating the need for a floppy drive or LapLink type serial and parallel cable connections You can simply download software and files from any other I R equipped desktop or notebook as long as you're within range

Immediate Trends

The trend today is toward modular notebook construction. Virtually all the newer premium notebooks already feature screens hard-drives floppy drives and batteries which are user removable in order to accommodate alternate devices.

As the price point for "premium" notebooks tends to hover around $6 000 this modularity — and news from your manufacturer about available and upcoming compatible devices — is what you should be looking for. Of course notebooks with at least some of the latest features can be bought new [illegible] the simple privilege of chasing that moving technological train

A Pentium 75 based notebook with built in sound and speakers and a 11 3 inch SVGA screen for example could run you close to $10 000 today but may well drop by up to 40 percent in a matter of months

As much as they enjoy getting ten grand for a machine notebook makers all agree that the best thing to do is buy what suits you now worry about getting all the neatest and newest stuff another day because if you wait til all the newest features are available and affordable you'll never own a computer

There are however clearer guidelines when it comes to considering what *not* to buy A notebook with any of the following is just too out of date to even consider

- any kind of clip-on pointing device
- a 16 or 32 grey scale monochrome display (64 grey scale is still current)
- anything smaller than a 9 5" display (color or not)
- anything less than a 486 DX33 CPU
- any CPU with "SX" in its name
- anything less than 4 MB of RAM (but 8 MB is what you should expect)
- less than two PCMCIA Type II (one Type III) slots
- RAM that can't be user-expanded beyond 16 MB
- any hard-drive smaller than 350 MB

If you actually do look at a notebook that incorporates all — or any combination of — these undesirable features, there's no doubt the price is going to be devilishly tempting Almost every first time buyer is convinced that a "cheapie" will do because they only want to (Your intention here)

Most are later saddened because as they get more intimate with computing they discover all kinds of appealing activities CD ROMing is the most common of these but any sophisticated games graphics rudimentary desktop publishing etc become well-nigh impossible on older cheaper machines Remember computer companies didn't become the dominating force they are through altruistic consideration for your wallet If they're selling cheap there's a reason ❑

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will open the purse strings and allow you to buy it. What to do? Well, how about the old "business presentation" argument: you need a first rate notebook so that when you're on the road you can wow clients with a really impressive presentation.

Puny Presentation Power

The problem then becomes the fact that a notebook by itself isn't really the best device for giving presentations. Notebook screens are small (ranging up to a maximum of 11 inches or so in diagonal size), they are dim if used in a well lit room, and the viewer has to be seated directly in front of the screen to see it clearly.

You could lug a 17-inch monitor around with you, and hook the notebook's RGB output port to it, but that sort of defeats the purpose of having a tiny lightweight computer.

The problem then becomes the fact that a notebook by itself isn't really the best device for giving presentations... You could lug a 17-inch monitor around with you, and hook the notebook's RGB output port to it, but that sort of defeats the purpose of having a tiny lightweight computer

You could hook up the notebook to a large RGB monitor or video projector at the client's location, if the client has one available. Alas, the client probably doesn't have one available. Many business clients do have overhead projectors, the kind used for projecting transparencies onto a movie screen or a wall. Several notebook manufacturers have exploited the wide availability of this pervasive, simple, inexpensive overhead projector technology to justify the creation of notebook computers which are explicitly designed to allow you to put a translucent LCD color screen onto an overhead projector, and project a big, bright computer display that an entire auditorium full of people can view at once.

IBM makes a version of its ThinkPad, the 755 DV/CV, and Benton Harbor MI based IntelliMedia makes a line of IntelliaView portables, both of which are aimed at the portable presentation market. As well, we recently became aware of a Canadian firm, Paterasp & Associates of Burnaby BC, which offers a line of presentation notebooks called the Revet Cruiser. This article will look at a Cruiser model we reviewed recently in our test lab.

The Cruiser [illegible] color notebooks is aptly named, since they allow you to roam freely and give effective presentations just about anywhere. The 75MHz 486 DX4-based model that we tested offered Windows computing at a comfortable speed. It comes with a unique detachable LCD display that is used with an overhead projector to project images directly onto a movie screen or other flat reflective surface. This feature sets the Cruiser apart from run-of-the mill notebooks, making it an ideal piece of equipment for people who want to make a real splash with a presentation.

Remotely Controllable

To make presentations simple to give, the Cruiser comes with Mind Path's Remote Controller, a device that allows a presenter to easily control a Windows-based presentation without having to hover around the laptop's keyboard. One can walk freely about, and control the computer from a distance. While the built-in stereo speakers don't offer earth shattering volume, they are adequate to support a presentation in a normally sized classroom or board room.

For those who want to add thunderous noises and other such multimedia extravaganza to presentations, this unit offers plenty of features. The Cruiser comes with a full compliment of sound I/O ports. There's also an optional multimedia

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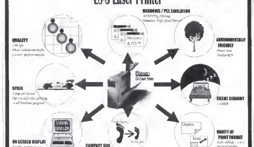

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adapter that would allow the incorporation of television, VCR or a camcorder into a presentation

Aside from a full complement of presentation features the Cruiser comes with all the features you'd expect in a high end notebook, including one type II and one type III PC Card slot an optional external SCSI port and an optional expansion box that will take two 16-bit ISA cards

The styling of the unit is as professional as the internal engineering The attractive matt black casing is well laid out The active matrix color screen, at 8 5 inches diagonal size, is modest though in a presentation projection environment this is not an issue Graphics output with up to 64k of colors visible at a time is quite vivid. Joystick fans are out of luck on this model (none included — it would be fun to play Doom projected on a movie screen) but as slight consolation the track ball housing does come apart easily for servicing We found the keyboard very comfortable though this is a matter of personal preference

Configuration And Pricing Comparing The Competition

The Cruiser we tested came with a 320 MB hard drive, 16 MB RAM the remote control and a 14400 PC Card modem for a list price of $10,350 Less fully configured models start at $6 995

The competing ThinkPad 755 CV starts at $12 499 though to be fair that computer is also beautifully engineered and comes with many enhancements including an 810 MB hard drive, infrared port 486 DX4 100 MHz processor, and both OS/2 Warp and Windows 3 1 preloaded.

The IntelliView series of presentation notebooks incorporates many interesting ergonomic features for example the translucent screen is permanently fixed onto the main body of the computer The user has to lay the entire unit onto the overhead projector It is a very robust well thought out multimedia presentation tool easy to control and simple to train presenters on Prices start at $5 763 (for an underpowered 486 SLC 25 MHz based model) and shoot past even the ThinkPad 755 DVs prices to a maximum of $21 593 for the IntelliView MPS-200 which has an 8 4-inch screen with 1024 by 768 resolution, with 185 000 colors.

The Cruiser line compares very favorably with these other major offerings in the presentation notebook field, offering an excellent balance of price and performance This notebook is the ticket for those who must have the ultimate in presentation functionality For the rest of us, however, the Cruiser may unfortunately remain a street car named desire ❏

Contact Information

Cruiser Mk-III Presentation Notebook

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IBM ThinkPad 755 CV

IBM Canada (905) 316 9000

IntelliView

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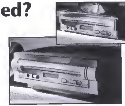

NEC's MultiSpin 6X Drives

BY ROSS MACDONALD

6Xe and 6Xi

From:	NEC Technologies Canada 6225 Kenway Drive, Mississauga ON L5T 2N3 Tel 905-795 3500
Estimated Price	$671 (6Xe external) $725 (6Xi internal)

It's the latest, the greatest and it's pretty speedy too But it's also quite possibly the heftiest CD ROM drive yet to hit the market Weighing in at 6 4 lb (external model the internal version weighs about half that) NEC nevertheless assures us that this device's capacity to spin at six times the rate of the original single speed (150 rpm) drives "represents the next step in CD ROM technology"

Touting the best CD-ROM performance currently available they're anticipating that this new standard will soon be demanded by corporate SOHO (Small Office/Home Office) and home users alike But, since it's only just hit the streets, we'll have to wait and see

The greatest determinant is likely to be price. NEC has wisely released both the internal and external models at relatively reasonable levels which are likely to become even more so in the fullness of time Keep in mind that the prices cited here are NEC's own estimates which means they might just be somewhat less at the retail level (though the 6X is already shipping it's still so new that genuine street prices weren't available at time of writing)

As soon as you see the box for the 6Xe you know you're in for some desk re-arrangement...

As soon as you see the box for the 6Xe you know you're in for some desk re-arrangement — and your fears only grow worse as this elephantine peripheral emerges At 6 9 x 3 0 x 13 inches and bearing those 6 4 pounds, this item sits rather toward the largish end of computer accessories Once you get past that however you can see that NEC has heeded past criticisms when it comes to ergonomics and design

The first improvement I noticed having reviewed their 4X CD ROM drive last year, is that the status display panel is now backlit Though still mysteriously minuscule (at 1 x 0.25 inches), it is now possible to actually see what's going on when the drive is activated The front of the unit is also replete with full controls for audio CD playback (PLAY/PAUSE, FF REW STOP) alongside a headphone jack with adjacent volume control

Going to the back of the machine we find further thoughtfulness with left and right RCA audio cable jacks plus an enigmatic new third jack labeled Digital Output I had to go to the owner's manual for that one because I didn't know what it meant This is NEC's tantalizing explanation "The Digital Out connector is provided for future connections to external video decoding devices These devices, expected to be available from computer and electronics dealers sometime in 1995 will allow you to play video CDs on your CD-ROM reader and view the video on television."

Sounds nifty but probably only practical if you have the mobile external model or elect to move the TV within reach of your computer Of course the usual dip switch and termination selectors can be found back there too

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IBM, NEC Launch Premium Home PC Lines

BY JEFF EVANS, CONTRIBUTING EDITOR

As sales of PCs into the home market have taken off in the last couple of years, the first tier" PC manufacturers including AST Compaq and Apple have found that the home market offers a rapidly growing opportunity to increase their sales and market share Consequently the name brand manufacturers have devoted a great deal of effort to understand this "new" market and to engineer products that they hope are attractive to home based computer users.

According to studies by IBM, the home market can be divided fairly neatly into 3 identifiable similarly sized segments.

No Frills, Please

At the low end are PC users who buy basically on price considerations for this group, modestly featured PCs from almost any source will do This end of the market is where most of the clone makers are concentrating their efforts

A Pleasant Out Of Box Experience

In the middle range are families and/or first time computer users who want an easy (dare we say Mac like?) introduction to computing-well integrated highly featured systems that are easy to set up and use and come with a full set of software and good warranty coverage and technical support

No Compromise PCs

At the high end of the scale are the Power Users, who are willing to spend big bucks on leading edge systems, featuring the latest and fastest processors graphics and drives

In an attempt to ride this wave of computing into the home technology giants NEC Technology and IBM have both just announced major new lines of high performance feature rich desktop PCs for the home computing market which cover the middle range of the home market and extend in their highest featured models into the power user category

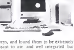
Ready Aye, Ready

NEC's Ready line of PCs was introduced to Canada on September 6 as "the ultimate Windows 95 machine" for the home and small office. The ready series represents a major raising of the bar for home computers.

Only Pentium based models are available, the 486 processor having been deemed too obsolete and the entry level model has 8MB of RAM, a Gigabyte hard drive, 64 bit PCI graphics, extremely extensive audio and telephony features and a host of high quality CD-ROM titles. From our first look these are among the most nicely integrated and well engineered PCs we have seen in 1995, in keeping with NEC's reputation for innovation and high quality The downside as might be expected, is that these are not discount priced machines starting at an estimated street price of $2799 CDN, without monitor, for a 75 MHz based model NEC Technologies vice president, Greg Myers stated that "Far from being just a machine to do work, computers empower people to create, explore and communicate at new levels Like any household appliance you just plug it in and it works NEC Ready computers offer users hassle free performance at a very affordable price All Ready models come with Windows 95 preloaded and make use of Plug and Play technology Uniquely they come with a hand held infrared controller to operate all the telephony and audio functions (including voice mail) All but one of the Ready models feature MPEG 1 full screen full motion video playback and a Suspend/Resume feature which allows the PC to sleep in low energy mode until a user's keystroke or an incoming call wakes it up All systems have a 3 year warranty supported by ReadyRemote technology which allows a service technician to remotely diagnose, and even repair a PC in the user's home

IBM Aptiva Arrives

Within days of the NEC announcement, IBM came to The Computer Paper offices and showed their new line of home PCs to this writer and our Technical Editor Chris Fisher We had tested Aptiva models in previous PC



surveys, and found them to be extremely pleasant to use and well integrated but quite low powered considering the suggested retail price The new Aptivas are still very easy and pleasant to use and similarly priced to the old line but the performance is radically improved in almost every respect.

The new Aptivas match many of the characteristics of the NEC Ready's point for point Pentium only Gigabyte drives or larger rich audio and telephony MPEG I playback remote access tech support instant on feature, huge list of first rate software and so on Unique features include an IBM digital signal processor which offloads sound and voice tasks from the main processor plus a six month trial access to the IBM Global Network. As well Aptiva models are available with any one of Windows 95, Windows 3 11 or OS/2 Warp preloaded. As well the Aptiva features very sophisticated VoiceType Control voice recognition built in.

With a base price of $3299 including a 14" SVGA monitor which works out to about the same cost as the NEC Ready without a monitor these two competing new lines of computer redefine the high quality home computing experience

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Finally it's important to note that NEC still votes in favor of that pesky "caddy" based disk transport system, requiring that you insert the disk into a plastic holder before shoving it into the machine. This has long been considered the way to get the best performance from your disks because it reduces vibration when the motor spins allowing the laser to get a better read.

Such claims have been negated, however, by vast improvements to the more normal "tray" system which we're all familiar — and happy — with now. The caddy system has, however, allowed NEC to install a rotating double door that probably works better than anything else to keep dust out of the machine.

Both versions of the MultiSpin 6X are wired for SCSI and come with the appropriate cable and one free disk caddy. The 6Xe is also packaged with a SCSI to DE25 adapter, AC power adapter and a Macintosh driver diskette. Apart from dimensions and weight, the specs for each model are identical.

As the bulk of my work is done on an NEC Versa E notebook, I received the external version for testing. My own CD-ROM drive is another NEC product — the 3Xp — an external version of what was all too recently the company's flagship triple speed drive.

Having two NEC CD-ROM drives to use through an NEC computer presented an ideal situation from which to evaluate the 6Xe's performance. Both drives were individually connected by a SCSI II/16-bit Sound PC Card combo card from New Media Corp., which is accommodated by Windows 95's integrated 32-bit drivers.

It seemed prudent to perform two simple tests. The first was a technical CD-ROM performance evaluation using the MPC Wizard (v.2) CD ROM released by Aris Entertainment in 1993. This is a common consumer oriented diagnostic package. The second test was a comparison in which two popular CD ROMs — MS Encarta 95 and MS Multimedia Beethoven — were run to see how long it

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took for each to perform a few tasks and propel the final product onto the screen The results of both tests were dramatically unexciting

The Technical Tests
Average Seek Time is measured in milliseconds (ms) — the lower the number the better It tells you how quickly the drive searches the CD-ROM for whatever you requested

Data Transfer Rate (also called "throughput) is measured in kilobytes per second (kb/sec) — the higher the number the better It tells you how fast the drive is pushing the information up the pipe to your CPU

The 100 percent 60 percent and 40 percent figures show the data transfer rate as your CPU devotes different amounts of its attention to the CD ROM drive There s a lot going on inside your computer besides CD ROM stuff so the rates vary accordingly Each test was run four times to ensure consistency

Performance

	Average Seek Time (ms)	Data Transfer Rate (kb/sec) 100%	60%	40%
6Xe	2	316	288	147
3Xp	2	137	118	94

These numbers show that there are some genuine technical advantages to a 6X CD ROM drive over a 3X Curiously however the press release for the 6X boasts an average seek time of 145 ms and throughput at 900 kb/sec None of our numbers come close to that here but that might be explained by the fact that CD ROM drives are at their best when simply transferring data (i.e from the CD ROM to the hard drive) so manufacturers tend to use those optimum figures when hyping their machines.

Unfortunately when there's actual multimedia type stuff going on — sound video searches animation etc — things slow down considerably

The 'What You See ' Tests
This is a more practical approach because regardless of any marvels going on under the hood it s what s on the screen that counts Encarta and Beethoven were loaded then timed to see how long specific tasks would take After loading, Encarta was asked to produce its index and then present items randomly chosen from it Beethoven has a main table of contents instead of an index so that disk was simply tested to see how long it took to jump between menu sections Again, each test was performed four times to ensure consistency It is important to note however that all tasks were significantly slower than indicated here the first time each was requested

	6Xe	3Xp
Encarta		
Load	10 sec	12 sec
Get Index	<1 sec	<1 sec
Get Item	3 sec	8 sec
Beethoven		
Load	4 sec	7 sec
Go To	<1 sec	<1 sec

It's clear there are some differences in performance However where 10 seconds for Encarta to load on the 6X is a full 17 percent improvement over the 3X, the two second difference doesn't amount to much when you're actually using the disk

The upshot of all this is that the 6X is a very good machine It starting out at less than outrageous prices will make it very attractive to a large number of first-time buyers However those who already have a 3X or 4X are unlikely to invest in such mediocre performance enhancement at least at this point ❏

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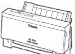

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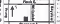

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AMD Banks on K5

BY GEOF WHEELWRIGHT

Who makes the computer processing chip that sits at the heart of your personal computer? For the vast majority, the answer is still industry giant Intel.

However arch competitor AMD (Advanced Micro Devices) of Sunnyvale, CA is stepping up its marketing efforts in a bid to change all that. The company has been highly successful over the past year in attracting computer manufacturers — including industry leader Compaq — to build systems using its Intel-compatible chips and has even managed to settle a long standing legal battle with Intel.

AMD has decided it will no longer hide its "light under a bushel." It all began last spring with the announcement of a corporate image campaign designed to increase the awareness and understanding of the company's capabilities "as a leading manufacturer of semiconductor products for the business computing and communications markets."

A New Corporate Image

The campaign marked the first corporate image advertising in AMD's 26-year history. It began during COMDEX/Windows World Spring 95 with a series of three two page spreads in selected business and industry publications in the United States including *The Wall Street Journal, Fortune, Forbes, PC Magazine, PC Week, Computerworld* and *InfoWorld*. The campaign also included a 30 second television spot appearing on the CNN and CNN Headline News networks.

Continued support of AMD's chip technology by manufacturers will of course be how the company will make the headlines this year. AMD has been under pressure in recent months to deliver on its planned "Pentium killer" K5 processor in high volumes and as soon as possible since Intel has been doing everything in its power to shift the market focus to Pentium — and away from the 486DX family — as quickly as possible.

Broader Customer Base Essential

While Intel now says that it is shipping more Pentium systems than 486s, AMD continues to gain new customers for its 486 chip family. Earlier this year, HP announced that it would begin producing systems powered by AMD's Am486 microprocessors. HP said it would use AMD's processors in some of its desktop PC systems.

"Because of continued strong demand for 486 microprocessor based systems, we need to take advantage of the opportunity to solidify our microprocessor supply," suggested Richard C. Watts, vice-president and general manager of HP's personal information products group. "Using AMD's high performance processors in these personal computer systems gives HP the diversity to meet the needs of its customers in various sales channels," claims Larry Hollatz, vice president of AMD's personal computer products division. "AMD has had a long, fruitful relationship with HP based on a wide variety of our products. We're delighted to add their Microsoft Windows-compatible processor business."

And desktop systems are not the only products HP is working with AMD to develop. The two companies also announced a long term "strategic relationship" to develop what they are calling "highly integrated solutions" for the handheld computing market.

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The companies promise that this relationship will yield new handheld devices that combine advanced PC functionality and communications in a pocket form factor. In this relationship AMD and HP will apparently work together to develop low power highly integrated silicon engines ideal for the handheld market.

HP suggests that the agreement will allow HP to maintain what it calls a leadership position in handheld computing. Meanwhile the companies say that AMD's expertise in high performance integrated silicon engines is based upon competencies developed for its Elan family of processors including the Am386SC300 Silicon Engine for handheld computing.

That device provides a low power solution that combines a 32-bit x86 core two PC Card controllers serial and parallel ports and an LCD controller with complete PC/AT compatibility. "The key to the Elan family is how AMD has produced a complete PC/AT system on a chip that can run on two AA batteries," explains AMD embedded processor division vice president David Chavoustie.

Wading through the mountains of marketing hype handshakes and feel good statements it is clear that AMD believes it needs strong partnerships across the industry to remain an effective competitor to Intel. And that sometimes means even working with competitors.

A Standards Co-Developer

Just look for example at the deal AMD struck with Cyrix in March. At that time the two companies announced that they had jointly developed an open industry standard for programmable interrupt controller (PIC) technology. The standard, named the OpenPIC specification provides an interrupt control solution for the symmetric multiprocessing (SMP) system supports all current x86 vendors products offers a common interface and provides an alternative to the 8259 interrupt controller standard currently used in all x86-based personal computers.

And it is not only Cyrix and AMD that are voicing support for this work. Compaq an important and high-profile customer of AMD's over the past couple of years is also onside. "Open industry standards are essential to foster growth and competition and the OpenPIC specification effectively provides an open standard in the growing multiprocessing area," suggests Compaq desktop and corporate engineering vice president Jim Paschal. "By working together AMD and Cyrix will set a precedent for developing and adopting open architectures in the PC industry."

As part of the cooperative agreement AMD and Cyrix will provide — for free — a standardized multiprocessing PIC specification to personal computer and component manufacturers who want to design OpenPIC architecture into their systems. The companies say that the creation of the OpenPIC specification provides both advanced multiprocessing support and interrupt source expansion for advanced servers and desktop computers. Several hardware and software support vendors are now supporting the OpenPIC specification including OPTi Inc a chipset manufacturer, and Phoenix Technologies a BIOS supplier.

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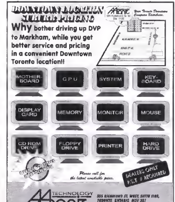
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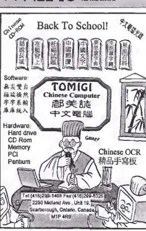
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Striking deals with high-profile hardware manufacturers like Compaq Acer Digital and Vobis has also given AMD the chance to claim some degree of "glory by association" when systems with AMD processors win awards Compaq's AMD powered Presario CDS 520 personal computer was voted "Best of 1994" by the US edition of *PC Magazine* and the Vobis DX2-80 personal computer earned the "1994 Computer of the Year Award in the 486 class from *CHIP Magazine* of Germany

Huge Taiwanese customer Acer meanwhile credits AMD's supply of chips last year as one of the driving factors behind its recent rise in the market. "1994 was an outstanding year for Acer Incorporated as we made the coveted list of top ten PC companies in the world," boasted Acer president of computer products Simon Lin. "A large number of Acer personal computers worldwide were powered by the Am486 microprocessor Acer's strong relationship with AMD contributed positively to our success in 1994"

The K5 Factor

Of course as suggested earlier it will be AMD's next-generation K5 processor that will really set the tone for the company's future This is something of a make-or-break event for AMD which needs this chip to succeed in a very big way

AMD had originally promised the first member of its "K86 Superscalar" product family — the AMD K5 — for this summer with the first complete systems using the chip being available in the third quarter But the company announced that it will probably now be 1996 by the time we start seeing systems using these chips in volume

AMD is putting heavy emphasis on how well the K5 will work with Microsoft's Windows 95 operating system as part of its planned rollout of this fifth generation microprocessor which it promises will be a superior engine' for running Windows 95

The Future

All of this effort however, could be entirely washed away If Intel succeeds in convincing consumers that nothing less than an Intel-branded Pentium chip will move them effectively into the future then the growth of competitors like AMD Cyrix and NexGen will be seriously limited

Aside from the obvious technological issues involved in the design and implementation of next generation chips the real deciding factor may actually lie in the marketing Intel has been trying very hard to market itself directly to end users with the Intel Inside campaign and its endless barrage of print and television Intel and Pentium branding ads

Intel can also be expected to continue discounting the future of the 486 technology and making every move possible to convince consumers that 486 PCs will eventually become a technological dead-end (unless, of course, they are in Pentium-upgradable PCs with 486 processors supplied by Intel)

A large contingent of PC manufacturers meanwhile, are working equally hard to get consumers to buy PCs on hardware brand names Compaq has led this effort very effectively with the strong establishment of the Presario brand name, and many home PC customers are now quite happy to take a serious look at any product bearing the Presario name, no matter what processor is inside it

It is this kind of effort that has to be the key to future success for AMD By making Windows-compatibility the benchmark for PC processor compatibility, and working to have Microsoft emblazon its Windows and Windows 95 logos on AMD chips AMD is hoping to diffuse any argument by Intel that AMD next-generation chips are incompatible and should not even be compared to Pentium processors.

The proof will lie in the delivery and performance of systems using the K5 If they are fast compatible and perform without significant problems, then Intel will indeed find itself with a serious challenge to the Pentium Otherwise AMD will continue to be just another one of the flies buzzing around the back end of the giant cash cow that Intel appears to have become And flies have unfortunately short lives ❑

Semiconductor Book-To-Bill Ratio Sets Record

NB — According to Price Waterhouse's World Semiconductor Trade Statistics (WSTS), the 1 22 seasonally adjusted book to-bill ratio set a new record, exceeding the 1 20 mark in May A book-to-bill ratio indicates that for every US$100 worth of products shipped (billed) manufacturers received $122 of new orders (bookings)

The ratio is computed by a three month moving average and seasonally adjusted A ratio over 1 00 indicates that orders are higher than products that have been shipped and is considered "bullish for the semiconductor industry

"The WSTS book-to-bill ratio is the semiconductor industry bellwether stat. The positive trend in the book to bill ratio drives a lot of investment into the industry," said Dan Hutchinson, president of VLSI Research Inc

Record bookings rose to $4 46 billion in July up 3 0 percent from the $4 33 billion in June The July 1995 figure is 52 7 percent higher than July 1994 bookings.

July billings also reached a new all-time high climbing to $3 67 billion representing a 0 4 percent increase over the $3 66 billion recorded in June The July 1995 billings mark is 35 8 percent higher than the July 1994 total

WSTS projects that the $33 5 billion (end of 1994) North America market will grow 34.0 percent to $44 9 billion this year, and to $74 9 billion by the end of 1998

The predictions for 1998 indicate a continuation of the North American increases in worldwide market share WSTS show current North American market share to be 31 5 percent of world sales growing to 32 1 percent by 1998. ❑

Security, The Internet And The Network

BY GEOF WHEELWRIGHT

As increasing numbers of corporations and small businesses set up their market stalls on the roadside of the information superhighway network administrators are going to face growing demand to provide their users with access to the Internet and World Wide Web — and do so in a way that is both secure and responsible.

Many have already provided users with some form of basic electronic mail gateway to the Internet but today's 'Net surfers want a lot more than that. They want the World Wide Web and that means having a proper TCP/IP connection of some sort as well as using one of the popular Web browsers.

For any network administrator facing this demand there are a number of issues to consider. The first is whether or not the company really needs to offer widespread access to the World Wide Web. If it is a question of your organization doing some of its ordering or communications using products that are offered over the World Wide Web, for example you really need to get people to look at the business problem that this is solving.

Lots of companies now offer interactive product catalogs on the Web and they are lots of fun to look at and browse through. The search capabilities of the Web also provide a quick way to find exactly what you want. But if the suppliers you plan to use on the Web do not have a huge range of new products in the catalog and do not change it very often there is little advantage to using an interactive catalog.

> **If the suppliers you plan to use on the Web do not have a huge range of new products in the catalog and do not change it very often, there is little advantage to using an interactive catalog**

Using existing Internet electronic mail connections you can still issue the orders electronically (provided that sensible security measures are taken in doing so) via simple Internet mail connections.

More often than not it is access to online information that provides the greatest pull for users demanding full Internet and World Wide Web access. There are now legions of excellent online databases on the World Wide Web, as well as directly published information from tens of thousands of individuals, private corporations and government agencies worldwide.

Anybody wanting to prepare industry reports, do market research or get updated information on a huge variety of subjects will now often look to the World Wide Web as their first port of call. Such individuals undoubtedly need full, unrestricted, reliable and secure access to the Web — along with a strong set of search tools to help them find what they need more quickly.

Finally, if your company is offering — or planning to offer — its own products and services via a Web page, then corporate access to the Web is a must. In this case it is a question of what type of Web access is advisable and who should have it.

Should It Start With The Network?

Once you have established that there are individual users in your care who need full Internet and World Wide Web access, you then need to ask how that access should be provided. Many network system software providers — including Novell and Sun Microsystems — argue that the local area network itself should be the point of connection to the Internet and that security arrangements should be made on the basis of a network-to-network connection.

The logic — that a single managed connection to the Internet from the corporation to the outside world will be more secure and more controlled — is certainly compelling. But it can also lead to network system software and security overkill.

For many users the initial point of contact with the Internet may actually come from an online service they are already using or are planning to use. Established players such as CompuServe have jumped into the Web connection business in a big way over the last six months, while newcomers like the just-launched Microsoft Network (MSN) and IBM's Internet options for OS/2 Warp are offering Internet and Web access built in.

In many cases, the limited requirement for Web access that currently exists in the mainstream business world may be met through such avenues. Using an existing online service provider such as CompuServe as the entry point for the Web provides a good, low-cost and fairly controlled way of gaining secure Web access.

Moving Beyond Experimentation

Once you move beyond having a few users who are experimenting with ways to access the Web and are really looking at ways of offering Internet mail and full Web access to all users on the local area network (and there will increasingly be sound business reasons for doing so) then the arguments made by

(continued on page 94)

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Security, The Internet, ...

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Sun and Novell begin to make a lot of sense

That s why we have recently seen the emergence of products such as Novell s version 5 of its popular LAN WorkPlace for Microsoft Windows and DOS This product is worth a closer look if you want to get a better sense of where things are going with network access to the Internet LAN WorkPlace 5 now includes, for example, an Internet browser If you have not used it LAN WorkPlace 5 is Novell's desktop TCP/IP solution and provides networked and remote Windows and DOS users with concurrent access to Internet, TCP/IP UNIX and NetWare network resources

The latest version provides a suite of WinSock compliant (WinSock being the technology used by Windows to make its TCP/IP connection) applications that include terminal emulation drag-and-drop file transfer via File Transfer Protocol (FTP) transparent Network File System (NFS) file sharing and dial in from remote locations

Probably most important for your company s net surfers, however is the fact that LAN WorkPlace 5 builds on an agreement Novell announced with Netscape in February and incorporates Netscape Navigator and a Windows e mail client to bring users directly onto the Internet.

For those who may not have used it, Netscape Navigator includes both an Internet browser and a news reader that lets users retrieve information and communicate on the Internet by providing point-and-click access to text graphics sound and video files on the World Wide Web The Windows Mailer meanwhile provides an interface for sending and receiving messages and files over TCP/IP networks including the Internet It supports Simple Mail Transfer Protocol (SMTP) and the Post Office Protocol version 3 (POP3)

One other important note is that LAN WorkPlace 5 s WinSock compliance means that all Windows applications may be run on any WinSock-compliant TCP/IP stack Similarly any other WinSock-compliant application may be run on Novell s client TCP/IP stack which is included along with the NetWare client for DOS and Windows Finally the integrated Windows dialer in LAN WorkPlace 5 provides remote users with "on demand" dial in over standard phone lines using Point-to Point Protocol (PPP) or Serial Line Internet Protocol (SLIP)

A Sunny Approach

So the Novell solution to corporate Internet access largely relies on making it an extension of the LAN Sun Microsystems meanwhile takes an approach that stresses network to network connections as well with a heavy emphasis on security issues According to Geoffrey Baehr chief network officer at Sun Microsystems the issue of developing secure ways of moving data around the Internet will be crucial to the commercial success of the hundreds of individuals and corporations setting up global electronic shopfronts on the World Wide Web

He says lots of the security systems under discussion in the media at the moment have been for individual users Little attention has been paid to network-to-network security — and that's a mistake because the Internet is, by its very nature all about network-to-network connections

Baehr suggests that too many users are lulled into a false sense of security by the idea that their electronic mail, for example, goes directly from one electronic place to another immediately with no chance of electronic intervention on the way

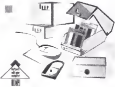
As experienced Internet users will know quite the opposite is true Messaging is handled much more like a relay race than a door to-door courier service and as the message gets passed from computer to computer on its trip around the world, there is no rock solid guarantee that someone cannot take down a copy of that information during one of its interim stops

This is particularly distressing news if the passed information happens to contain crucial corporate financial details that could affect stock prices credit card information or other data of a very personal or private nature

Baehr says that many current methods of authentification (making sure that who you say you are when you are online is really who you are) are not properly manageable and that it is just too easy for skilled operators — such as experienced system administrators — to "hack" into Internet traffic "Tools for system administrators are just as useful for bad users to collect passwords " warns Baehr.

He says that the solution may lie in a combination of changes to the way data is sent around the Internet, starting with general network to network encryption of data "which solves about 90 per cent of the

Continued on page **96**



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Notes Attracted IBM, Manzi Says

BY JACQUELINE EMIGH

BOSTON (NB) — "In early June I was an employee of a Cambridge software company, a Notes user and one of several million people who use an IBM Think Pad. But then, in the course of two short weeks, largely because of Notes, I rose like a meteor to become senior VP of IBM," quipped Jim Manzi, who is also CEO (chief executive officer) of Lotus. Manzi was a keynote speaker at the Lotus Symposium in Boston in late August, an occasion that marked the shipment of 10 million sets of Lotus Notes and cc:Mail.

"Let's take a look at what it was that so attracted IBM," Manzi continued in reference to IBM's recent acquisition of Lotus. The Notes product today has 10 000 business partners — including Sun Microsystems, co-sponsor of the Lotus Symposium — as well as "thousands of customers" and two million users, according to Manzi.

One large Notes customer — namely IBM — "liked the product so much they bought the company," Manzi told the audience in Boston.

There are three main reasons for the "remarkable growth" of Notes, he said. "We can start with the bottom line: companies that have adopted Notes have been able to demonstrate real, tangible returns on their investments," he contended, pointing to a "very careful, conservative" study by IDC published last year.

Conducted among 65 companies in a dozen different countries, the study showed an average return on investment of 179 percent for Notes, and a payback time of under two years, according to the chief.

The second reason for the growth of Notes is that it is "not so much information centric as it is communications-centric," he said. "We still tend to think of information as a physical thing — like a mountain. Or we think of it as a stock — like assets on a balance sheet. As a result, information becomes static and impersonal, the stuff of MIS (management information systems) reports or something that's in the possession of experts," he said.

"But that's not the nature of information — or at least it's a dead-end way to look at it. Information is really more animist than physical, more a flow than a stock. It is meant to be communication, which means it is lively, collaborative and purposive," the attendees were told.

The third reason is Notes's association with re-engineering, downsizing, and other forms of "organizational change," he continued. "But while there's no inevitable link between the adoption of Notes and organizational change, it's obvious from the daily headlines that a basic change in the structure of the corporation is taking place.

The "new networked organization" is using Notes to address the issue of how to distribute task in the periphery while managing complexity from the center," according to Manzi.

Lotus's acquisition by IBM will "ensure

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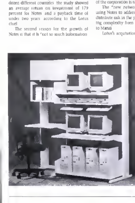

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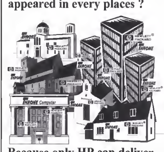

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Security, The Internet,...

Continued from page ***94***

problem " Encryption means running data through some software that turns data into an unintelligible mass of meaningless letters, numbers and control characters that can only be unencrypted back into its original form by a software key

Baehr adds that the whole issue of authentication ought to just take place at your host computer and that there ought not to be a requirement for users to have to re-authenticate themselves once they have logged on to their host. The authentication should instead take place on a network-to-network level Once you have transparent encryption and authentication, it doesn t matter (from a security point of view) what the network is

He says that there are huge rewards to getting this right. And the cost of getting it wrong is huge frustration Baehr should know Sun Microsystems Netra Internet servers apparently own something like 56 per cent of the Internet server market (according to Internet Society figures) so he faces the question every day The question came up more and more this year particularly when "super hacker" Kevin Mitnick was arrested by the FBI last February

"You cannot say to a company to go and do business on the Internet when this kind of thing is going on," he says. "And when you look at many of the attacks on the 'Net you see that although frequency (of the attacks) has not increased the level of sophistication has moved up "

Baehr says users used to typically break into systems with primitive DOS tools and hack around 'And now they know so much about TCP/IP connection that they can tell one side of a connection is closed and then insert themselves at the other end of the connection and take it over " he warns. "The design of networks has been to make them easy to connect They were not designed to authenticate And many of our customers maintain their security by having a network that does not offer a connection."

If those users are to be enticed back into making connections to the network they will have to see some coherence behind industry efforts to solve the security problem Baehr says a major effort has to go into better awareness and use for network security standards at all levels especially where applications are concerned "Right now each application might have different passwords keys (and other security measures) If you look at the NetScape Spry (Mosaic) and other Net browsers each one has slightly different authentification " he says ❑

Notes Attracted IBM . .

Continued from page ***95***

that Notes customer success stories continue to proliferate " The merger "will be successful mainly because we are very focused on the human assets that provide the knowledge, experience and the ability to innovate and capture new opportunities " he said.

"IBM was very clear that this is what they were buying They were acquiring our people our culture our commitment to excellence, and our ability to serve customers " Manzi maintained

Manzi also summed up a series of decisions reached by IBM and Lotus since the acquisition that Notes is IBM s workgroup client the Notes server is IBM's mail, messaging and groupware platform SmartSuite is IBM s "strategic desktop suite," cc Mail is IBM s mail client and Notes will "continue to be open "

Added the keynoter speaker "We don't view the Web as a competitor We believe, instead, that Notes is an incredible Web authoring and process-management tool that can help companies truly exploit their presence on the Web "

Lotus has introduced the InterNotes product line to "further extend the reach of Notes to what we've labeled as extra-enterprise applications with access to the Internet " Manzi asserted

In another keynote at the symposium, Anil Gadre, VP of corporate marketing for Sun described a long standing partnership between Sun and Lotus that has included Lotus's use of "Sun Internetworking" and the bundling of Notes with Sun products.

Gadre also pointed to a series of large-scale business applications combining Sun with Lotus products, including a 1,000-user installation at Chrysler that features Sun workstations, Notes and cc-Mail

In a third keynote Neal David director of marketing information systems for Waters Corp , outlined Waters use of Notes in a sales automation application that replaced a paper-based system of distributing and qualifying leads, submitting sales reports and performing sales forecasting

Benefits of the Notes applications have included faster reporting time, more accurate sales quotations, and "improved forecasting," according to the Waters exec ❑

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Every Night Could Be Hockey Night

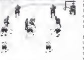
What's Playing!

BY GORDON GOBLE

For some odd reason, the summer of 95 was a prolific time for computerized hockey game makers. July saw the release of a pair of such products and two more big names are scheduled to hit the shelves just about the time you're reading these words. This infusion more than doubles the pre-summer total in this formerly sluggish, yet suddenly booming, gaming genre.

In this issue, we'll skate our way through Accolade's Brett Hull Hockey 95, then "check" out Merit Software's World Hockey 95, before sneaking a preview of Sony Imagesoft's ESPN National Hockey Night.

Brett Hull Hockey 95
From: Accolade
Street Price: $50
System Requirements: 486-33MHz CPU, CD-ROM drive (for installation), 15MB free hard drive space, 4MB RAM. Joystick or gamepad recommended.



Distributed by Sport Accolade, but developed by Vancouver's Radical Entertainment, Brett Hull Hockey 95 follows the same general approach as EA's NHL Hockey line, the current MVP of the computerized game. With a 30 degree end-zone scroll (or pan) of the ice surface, switchable player control and some coaching/managerial decisions, there doesn't sound like much of a difference from product to product. But, just as Don Cherry is far removed from Howie Meeker, there most definitely is.

BHH places its emphasis squarely on the on-ice action, thrusting booming slapshots and brutal bodychecks right into your face. Veterans of other hockey simulations will notice their viewing perspective has been lowered and permanently "zoomed in." As a result, individual players are suddenly long and lanky instead of short and squat, and certainly more fluid and realistic in their movement.

So close is the gamer's viewpoint, that left and right boards may not be visible from time to time and even the hardest of slapshots from inside one's own blueline may slow to a trickle by the time it travels the length of the ice. Add the play-by-play stylings of one Al Michaels (you know, the guy from Monday Night Football) and the whole undertaking begins to sound pretty palatable.

But with some experience, certain repetitious playing patterns, "never-fail" and "never score" routines, and generally unrealistic game tendencies will begin to hamper one's overall enjoyment. Lowly teams like the Florida Panthers will pump 30 shots a period at even the most proficient human players, computer-controlled goalies will hold the puck well after opposition players have completely cleared the zone, and there is little imagination in the positioning of computer-controlled defencemen and forwards. Needless to say, BHH loses a little of its initial luster.

BHH Front Office duties are limiting, confined for the most part to team attribute customization and simple line juggling. Player trades are not permitted, statistical reports meager, and replays are hard drive history when a new game has begun. On a more positive note, head-to-head play is supported and a license from the NHL Player's Association means that all real life players from the 1993-94 NHL season are represented.

Innovation is one of the keys to a successful product. But so is long-term playability, and although Brett Hull Hockey 95 is strong on the former, one gets the sense that an incomplete development phase kept it short on the latter.

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ESPN National Hockey Night

World Hockey 95

From: Merit Studios
Street Price $30
System Requirements 486-25MHz CPU 2X CD ROM drive 4MB RAM Joystick recommended

Speaking of short Merit Studios latest venture into digital sports comes up just that way in virtually every facet of its hockey simulator World Hockey 95 One of the sorriest examples of computer gamery ever to cross my desk WH gets a mention solely due to this month's focus on the bladed sport and the fact that its packaging looks curiously similar to that of EA's NHL Hockey 95 Do not be fooled

Preview of ESPN National Hockey Night

From Sony Imagesoft
Street Price N/A
System Requirements Unknown

Sure to be on the opposite end of the gaming quality spectrum is Sony Imagesoft's ESPN National Hockey Night, a product whose early beta preview copy is actually more playable than even the final release of the above abomination Big name backing from the likes of Sony ESPN the NHL and NHLPA would seem to assure a big budget and solid quality control and indications are that once completed NHN will play a strong second fiddle to Electronic Arts seemingly wondrous NHL Hockey 96 (see preview next month) for top honors in PC puckfests

Although currently missing some rather important elements such as audio a number of utilities and finalized gameplay, the preview copy of NHN nevertheless mixes glossy high-resolution interfaces with features galore and what looks to be strong player artificial intelligence

Off the ice NHN will be a coach and general manager's dream Statistics (either "historical" from the last two real-life seasons or "simulated" from your current season) will be plentiful cumulative and indexed in virtually any manner, trades just a point drag and click away and gameplay options both plentiful and innovative Intriguing features include manual vs. computer-controlled goal tenders perfect or imperfect referees and control of all players vs command of a single pre-specified 'star' player

On the ice basic skater activity shows hints of brilliance with an exceptional grasp on realism even at the beta stage Like Brett Hull 95 NHN benefits from its tight "camera" position (albeit at a higher 75 degree angle to the ice surface) and players are very large and very animated This higher perspective opens up a goodly amount of space behind either net and puck visuals are excellent as it spins and bounces on route NHN producer Ken George promises "underlying characteristics in players For instance each player will have a different style of checking With feedback from ESPN the NHL, NHLPA and Stats Inc, we think we have a good idea how each player reacts under different circumstances "

Apparently the final release will include various types of slapshots wristshots and five types of checking as well and NHN face offs will actually involve an element of skill rather than just dumb luck The game's replay mode will include a mobile camera VCR-type functions and a possible permanent save feature

Time will tell if game developers stick to their guns and incorporate all that is promised If they do ESPN National Hockey Night may well skate hand-in hand with NHL Hockey 96 toward "Sports Game of the Year." ❑

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What is TRAVAN Technology?

Simpler SimTown Appeals to Kids

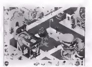
BY PEDRO ARRAIS

SimTown
From: Maxis
Ages: 8-12
System Requirements: MPC equipped IBM or compatible with 8 MB RAM and CD ROM/ also available on Macintosh
Street price: $54.98

For many years SimCity has been a classic in its field. Thousands have enjoyed building cities from scratch and watching their SimCitizens go about their lives at work or play. It has been a joy to watch a city grow, as well as frustrating to watch it decline in front of your eyes. Although the original, and the subsequent SimCity 2000 sequel, was a complex and engaging game many children, mine included, enjoyed it too on a more simplistic level. Still it is a daunting program that takes a lot to fully master.

SimTown was developed to offer a tamer, more fun version of the original. Specifically targeted at children ages 8-12, SimTown lets its creators design a less stuffy neighborhood than is possible with its stablemate. Everything is now on a smaller scale with pizza joints, video arcades, toy stores and the like. Such micromanagement of the environment sets this program apart from the more impersonal SimCity.

With either program you can start from scratch or with a ready made setting. The difference between the Town versus the City is that SimTown lets you choose the type of houses you want to build instead of zoning the property and waiting for the SimCitizens to build it themselves. The neighborhood can comprise dwellings, places to work (burger stands, grocery stores, pet shops, etc.), community centers, fun places (movie theaters, bowling alleys) as well as bicycle paths and skateboard ramps.



As with SimCity, children learn first hand the concepts of urban planning, economics and ecology but on a gentler, more personal scale. On the ecology side, the young urban planner can keep track of the resources the city uses and how much garbage and pollution the city produces. By planting more trees and crops he/she can supply the town with wood to build structures and food for its inhabitants.

A caution when considering this program is the minimum RAM requirement for this game: 8MB instead of the usual 4 MB found in other programs. The reason for the higher than normal RAM requirement is apparent when you see the detail of the renderings and the multitude of activities that happen at one time. When you zoom in, the detail of the buildings and characters is astounding and believable. Even the music customization is groundbreaking: you can choose from three different background soundtracks as well as being able to turn it off completely. Players can also import saved towns from friends, even if they are using another platform's version of the game.

SimTown is one of the more refreshing programs to be offered for young adults. While a lot less complex than its SimCity cousin, it is an entirely different challenge that younger players can grasp and have fun with. There are no taxes, zoning, heavy industry, water delivery, hydro and the like to bother with. Instead, you can create your own home in your own community with the ice cream parlor and video arcade just where you want them. Not a bad life, if you can get it. ❑

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KID'S CD

Three Little Pigs: Wolf's Version

BY PEDRO ARRAIS

Reader Rabbit's Reading Development Library, Level 1 & 2

From	The Learning Company
Ages	5-7
Price	$45 (approx)
Platforms	Macintosh and Windows (3.1 and Win 95) multimedia-capable

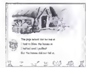
We've all heard the pigs' version of what happened between them and the wolf. But just suppose the wolf had something to say about the whole incident? Wouldn't it be fair to allow him to give his side of the story?

In The Learning Company's Reader Rabbit Reading Development Library Level One, the (alleged) big bad wolf gives his version of what really transpired on that fateful day. You also hear the classic version and a first person (oops, sorry, first pig's) account, straight from the pig's mouth.

Having three points of view is only one of the unique features that separates this interactive storybook from the rest of the competition. Targeted at beginning readers, the story can unfold as quickly or as slowly as the young reader likes. Children can have the story narrated to them at first and move into reading it at their own pace later. All the letters introduced are carefully paced, with special emphasis on vocabulary, sentence structure and ease of reading.

The animations would make Disney proud, with rich colors and easy movement. Your child's English teacher would approve of the speech and pronunciation, and the program includes funny accents to make the children laugh. When the story has been read and re-read a number of times, there are three activities that encourage the young ones to practice what they have learned.

In Story Match, children build vocabulary skills by matching words with pictures. In Story Order, placing the story events in the correct order builds sequencing skills.



The pigs would not let me in

I had to blow the house in

I huffed and I puffed!

But the house did not fall in.

Express It is my favorite. Here you can write to the character of your choice and ask them a question or make a suggestion. In this program, the character actually replies to your letter, expounding on what you have written.

Children are amazed and tickled pink that an interactive character would actually reply to their letter. This sort of active and positive reinforcement sets a new standard.

Keep in mind that these are reading comprehension "books" and are separate from phonics based software, such as the older Reader Rabbit series (1-3), which is still available. Parents may want to consider Reader Rabbit's Interactive Reading Journey as well. It contains 40 progressively challenging storybooks, over 100 phonics and word lessons as well as 20 lands to explore. The only drawback is that some children's attention spans cannot match the program's length, and they lose interest along the way. Best is to space it out to achieve better playability and absorption.

Between these programs, and the scheduled Reading Development Library Level 3 & 4 coming in early '96, The Learning Company will have the market covered, from first letters to advanced second grade readers. ❑

Contact: The Learning Company 800-852-2255

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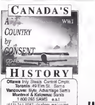
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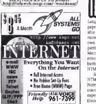
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HTML Editors Ease Web Page Construction

BY KEITH SCHENGILI BOBEBTS

With the explosion in popularity of the World Wide Web, there has been a corresponding increase in the demand for editors that will easily let people use the Hypertext Markup Language (HTML) to create their own home pages. Many simple editors have been available as shareware for a while now, but as more people and businesses construct their own Web pages professional software companies have started moving in. Firms like Microsoft, InContext and WordPerfect have entered the fray and have already started battling each other for supremacy in the new HTML editor market.

Strictly speaking if you already know HTML, you don't need any fancy editor. Notepad or any word processor that can convert your work to ASCII will do. But experienced HTML writers do not want to go through the tedium of directly coding HTML by hand, and the purpose of HTML editors is to help automate the task of creating pages for the Web. Several of these editors require little knowledge of HTML, allowing more people and businesses to create home pages without having to go through a steep learning curve.

Significantly three of the programs reviewed here (SoftQuad's HoTMetaL PRO 2.0, InContext Spider and HTML Assistant) are made by Canadian based companies. This may be a reflection of the disproportionate number of Canadians on the Internet. As a percentage of the total population, there are more Canadians on the Net than any other nation. 17 percent of all Canadians have some sort of access to the Internet. These editors will enable more people and businesses to make a contribution to the World Wide Web.

The Stand-alone Editors

The stand alone editors are self-contained programs that will help you create your Web pages, and are aimed at a wide audience. They are all available in scaled-down shareware versions you can try out before purchasing them. If you are looking seriously at creating your own Web site, one of these professional editors will probably have what you are looking for.

HoTMetaL PRO 2.0

Produced by SoftQuad Inc. of Toronto, HoTMetaL PRO 2.0 for Windows is arguably the most mature editor reviewed here. It is the only HTML editor with an established track record. SoftQuad first released a shareware version of the program in June 1994, followed shortly by HoTMetaL PRO 1.0 in October 1994.

➤

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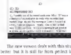
SoftQuad was among the first to produce a commercial HTML editor product, and they have learned from their past.

It is a pseudo WYSIWYG editor, displaying home page information roughly as it would appear to most Web browsers. The accompanying HTML tags are also displayed so you see what you are working with.

HoTMetaL has always been known for its strict adherence to the rules governing HTML — some would say too strict. The shareware version of HoTMetaL was notorious for refusing to load any existing Web page that did not conform to its rule-based structure. This rule-based structure is good for producing home pages that will run on all browsers, but may prove to be too inflexible for many Web authors.



The Misc "S" Home Page

The new version deals with this situation better, but it is still far from perfect in this regard. If you use a lot of Netscape extensions in your home pages (particularly any attributes added to the BODY tag, like changing background color) it will allow you to load the page, but it will expect you to correct this deviation from standard HTML. There is a handy feature to disable the HTML rule checking feature, but you are not allowed to do so before loading a page.

Until the updates for these Netscape tags are posted on their Web site (http://www.sq.com/), this strict adherence to accepted HTML tags will make this particular editor too inflexible for people planning on using extensive Netscape extensions. Its pseudo-WYSIWYG interface is an excuse for not providing a way to easily view your document through a specific Web browser, a feature all of the other editors reviewed here allow you to do.

This editor does have a lot going for it, however. The extensive tags available on the program's toolbars means that you are only a mouse-click away from implementing most of the tags you will ever need. However, it is not always clear by looking at them what each of the buttons do, and loading all of the toolbars clutters up the window.

It also comes with a spell-checker, thesaurus and dictionary, and with the press of a button you can verify your code, so you can be sure that your home page can be viewed by any Web browser. Its macro and template support means that you can easily create large numbers of home pages that use the same general format. This is a great feature if you plan on producing lots of HTML pages for things like online catalogs or corporate home pages.

It also includes an excellent tool for producing tables. Just enter the number of rows and columns you want, and presto, they appear on screen waiting for your input. Unfortunately, because it doesn't handle the new Netscape code attributes well, your tables will not appear with any lines dividing your cells, which ends up making the whole thing rather silly.

Without any reservations, probably the best feature is HoTMetaL's ability to directly convert documents from your word processor into HTML. HoTMetaL supports over a dozen of the most popular word processors on the market, and the conversion process is fast and accurate. If you are new to HTML and have a lot of documents to convert, this feature alone may be worth the price of the program.

So far, HoTMetaL PRO 2.0 is only available for Windows, but versions for other platforms are in the works. If you are interested in getting a better idea of how the program works, download HoTMetaL Free from ftp.cs.concordia.ca in the directory /pub/www/Tools/Editors/SoftQuad. This is a good editor for experienced HTML coders, hampered primarily by adhering too strictly to standard HTML. SoftQuad HoTMetaL PRO 2.0 is available for $195 US. Upgrades are available for $59 US.

Contact: SoftQuad Inc. 416-239-4801 or 1-800-387-2777. World Wide Web: http://www.sq.com/

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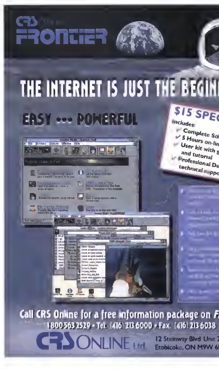
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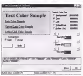
HTML Assistant PRO 1.62

HTML Assistant is a deceptively simple-looking program that has a lot of features to keep the professional HTML-coder happy. Developed by an ex-patriot Silicon Valley programmer now resident in New Brunswick, its simplicity and ease-of-use has made it the choice of many HTML coders.

At first glance, HTML Assistant doesn't look like much. It appears to be a copy of Notepad with a few HTML bells and whistles thrown in. But do not mistake its simplistic look with simplistic functionality.

One of the best features about this editor is its user interface. It displays the most commonly used HTML tags, and provides easy access to the less common tags. Simply highlight a passage, click a button, and you can establish a link, create a list or insert an image without any fuss.



This is a program that has adaptability built into it, and HTML Assistant is easily the most flexible of all of the HTML editors reviewed here. There is an editable drop-down list of tags you can create and then insert into your HTML pages. The PRO version comes pre-loaded with most Netscape extended tags. If you use lots of Netscape tags in your home pages, the ability to readily call upon a list of pre-set Netscape tags is very handy.

The program also comes with Background Assistant, a WYSIWYG device that helps you create color backgrounds for your Web pages. It automatically creates the "<BODY >" tag, and then you can easily adjust color attributes for the page's background, text and links. You immediately see what you'll get when you mix various colors on a page, and it is definitely the easiest way to implement what can often be a tricky piece of HTML coding.

If you are very new to HTML, the automatic Web page function will take care of the formatting for you. Simply insert a title, some text, specify any links or images you want to embed, click a button and voila! — instant home page. Many advanced HTML coders will probably never use this feature, but it is very good way for the beginner to learn some standard tags.

You can also specify which Web browser you want to check your code against by clicking a button. If you are using Netscape, you can use HTML Assistant's Dynamic Data Exchange link with the browser, letting you switch between the editor and Netscape, so that you do not have to close and reopen the browser each time you want to check your code.

Another handy feature is the URL Grabber, a floating toolbar that sits on your desktop and enables you to easily grab and store URLs wherever you find them in your travels across the Internet. See a page with lots of links you like? Save the page and then use URL Grabber to extract all of the links from that page and drop it into one of your own. This is an extremely useful feature for professional Web surfers.

There are plenty of features HTML Assistant does not have. It does not have a spell-checker, it will not automatically convert your word processing documents for you, and it will not verify your code as you write it. It is a good program, but it is not as feature-rich as it could be, and for that reason many people may balk at the $139.95 list price.

To get a taste of the program, try the shareware version available from ftp://ftp.cs.dal.ca/htmlasst/htmlafaq.html. This is a good HTML editor with room for some improvement, but with enough features to make it the editor of choice for many HTML professionals.

Contact: Brooklyn North Software Works 902-493-6080
WWW: http://fox.nstn.ca/~harawitz/index.html

InContext Spider

The latest entry into the professional HTML editor market is InContext's Spider. InContext is best known for their SGML (Standard Generalized Markup Language) software. They recently made a deal with Ottawa based Corel Corp. to include some of their technology in a forthcoming release of the Corel Ventura desktop publishing program. Many people were waiting to see what InContext would do with an HTML product. Spider is the result, a quirky but powerful HTML editor aimed at beginning users.

The user interface is somewhat counter-intuitive, but anybody who has used the InContext 2 SGML editor or is familiar with the copy-editing mode in DTP programs, will

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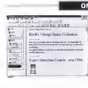

Keith's Vintage Radio Collection

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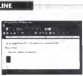


immediately understand what InContext is trying to do

When you open a Web page in Spider it gives you a WYSISYG display along with a side panel that shows the HTML structure of the page. Put your cursor on the document, click the appropriate tag from the toolbar, then insert text, graphics or forms simply and easily. This approach will be counter-intuitive for some users — it took this reviewer about 10 minutes to learn how to insert a new tag in a page — but once mastered, the beginning user will get a much better idea of the structure and use of tags in constructing a Web page.

When you launch Spider, you also launch Spider Mosaic (an adapted version of Spyglass Mosaic) to view your code. If you connect to the Internet, you can use this version of Mosaic to surf the Web. If you see a page you like, you can easily copy the links you want to your Web page, click a couple of buttons, and instantly have a number of links inserted into your Web page.

If you are starting a new Web page, you can choose whether or not you want to conform to strict HTML 2.0, 3.0 or a "relaxed" tag format, ensuring that the pages you construct will be viewable through a majority of Web browsers. The product also features a good spell checker and excellent product support through the InContext Web page.

Due to its strict conformity to HTML rules, it does not allow for Netscape tags to create tables, background images or to center objects on your page. Even if you hand-coded these features in another editor, they would not appear in Spider Mosaic. A serious interface flaw is the lack of tool tips when you place your cursor anywhere over the button bar. This will prove to be a handicap for beginning users.

Overall, InContext Spider has a lot of features that the beginning user will appreciate, and once some of its quirks are overcome, it is easy to whip off good-looking Web pages quickly and easily. Expert users and people who use plenty of Netscape tags may find it unwieldy, but beginners will appreciate the uncluttered interface that shields them from the raw HTML code, while teaching the basics about HTML structure. InContext Spider is available for $149.

Contact: InContext Corporation, 416-922-0087 or 1-800-263-0127
WWW: http://www.incontext.ca/

Add-on HTML Editors

If you already own Word 6.0 or WordPerfect 6.1, you can get add-ons that will enable you to convert your documents directly to HTML with little effort. This option is a big advantage for new users in that the conversions are effortless, so you do not have to know any HTML to get started. Even better is the fact that these add-ons are freely available if you have an Internet connection. If you are familiar with and comfortable using either Word 6.0 or WordPerfect 6.1, this is definitely an option to explore.

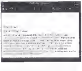
Microsoft's Internet Assistant

Internet Assistant is Microsoft's HTML add-on to Word 6.0, and loads as a template file within the program. Once loaded, not only do you have an HTML editor, but a Web browser as well. So far this is the only integrated HTML editor/Web browser available.

Unfortunately, it is not particularly zippy when used to surf the Web or anything else for that matter. The browser component does support some nice functions like ftp and gopher in addition to the Web, but its slowness will keep many people from making it their browser of choice. Word is already well-known for being a memory-hog, and with Internet Assistant open it brings the task of traveling the Net down to a crawl on most machines. Much of the advantage to be had from this integrated application is lost if you want to drive Word onto the Info Highway.

The layout of the toolbars is also limited. It doesn't approach the functionality built into even some of the simplest HTML editors. This approach will not satisfy the experienced Web author.

Where Internet Assistant for Word excels is in translating existing Word documents automatically into HTML. Load up a Word file, click a button, then save the result as an HTML file. The translation is smooth, and the result is good if not stunning Web pages.



Internet Assistant is free if you have access to the Net. You can get it from http://www.microsoft.com/msoffice/freestuf/msword/download/ia/default.htm. Note that Microsoft has the bad habit of juggling their Web pages around, so if you cannot connect to this URL, go to the main Microsoft Web site at http://www.microsoft.com, then make your way to the Word section. The speed factor may see some improvement with the version of Internet Assistant for Word 7.0, which will likely be the first 32-bit HTML editor for the Windows 95 operating system.

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Mac Fair Toronto 95

BY JEFF EVANS

The MacFair Toronto 95 computer show, held at the Westin Convention Centre on Toronto's waterfront on Saturday September 9th, drew avid crowds of Mac enthusiasts, who flocked to see the latest offerings from Apple and a representative group of third party developers. Front and centre in the proceedings were two of the first licensed manufacturers of Mac clones ("Compatibles! Mac compatibles! Not clones!" insisted Apple representatives).

Radical Radius

Radius, the first company to bring a Mac mmm, compatible to market, had a wide range of their high quality monitors and other products on display. The Radius System 100 is a high end graphics workstation based on a PowerPC 601 processor and the Mac O/S, aided by a clutch of high speed digital signal processing chips. The System 100 has been engineered to give exceptionally high image processing speed using PhotoShop software. These System 100 models, variously configured, cost around $20,000, and are undoubtedly the most powerful desktop publishing PCs available on the market today.

Low Cost, High Power

What attracted the attention of the crowds of average users, however, was the presence of the consumer-oriented Power 100 and Power 120 desktop Mac compatibles from Austin TX based Power Computing Corp. These systems are equivalent to Mac 8100 models. In an exclusive Computer Paper interview just before his keynote address, Bob LeVitus, well known author of the "Stupid Mac Tricks" book and software series and official 'Evangelist' for the Power Computing line, outlined the philosophy behind Power Computing.

"We want to be the Dell Computer Corp of the Mac compatible market," LeVitus stated. "We intended to make extremely high quality leading edge Mac compatibles and sell direct to end users and offer terrific support and service, and that's just what we've done." LeVitus claims that the creation of a Mac compatible industry will increase the appeal of the Mac platform to a wider spectrum of personal computer users, benefiting Apple, third party manufacturers and end users alike. "I think Apple does a lot of things right," said LeVitus, "but they can't do everything. Radius is serving a high end niche market, and we are developing a direct sales channel, neither of which are directions that Apple wanted to go."

MacFair Toronto, though smaller than the recently cancelled MacWorld Toronto show, indicated that the Mac user community in Hogtown is still vigorous, and loyal to their favourite computer platform. One hopes that it will be even bigger and better attended in 1996.

For more information, contact:
Apple Canada (905) 477 5800
Radius Inc., Canada (416) 777 9900
Power Computing Corp (800) 406 7693
Internet: info@powercc.com OR www.powercc.com

WordPerfect Internet Publisher

Not to be outdone by Microsoft, Novell has come up with an add-on HTML editor for WordPerfect 6.1 users. Though limited, Internet Publisher has a better user interface than Microsoft's Internet Assistant.

Internet Publisher is launched as an option for creating a New document, which brings up a new toolbar for creating HTML code. New users can load templates to start new HTML pages, or convert existing WordPerfect documents into HTML. Buttons on the toolbar are available for the most commonly used functions and tags, which eases the task of creating new Web pages.

Novell has included a copy of the Netscape browser with Internet Publisher so you can see how your newly minted HTML document will appear on the Web. Click a button to view your work in progress in Netscape, and press another to convert the page to HTML when you are satisfied with the result. Novell also includes a copy of their Envoy viewer as an enticement to buy the full Envoy package, which allows you to view documents with all of their original formatting intact, just like Adobe Acrobat.

Like Microsoft's Internet Assistant, Novell's Internet Publisher will not satisfy experienced HTML coders. But like Internet Assistant, it produces satisfactory Web pages automatically from original WordPerfect documents.

Internet Publisher is available free from Novell's Web site at http://wp.novell.com/elecpub/intpub.htm. For those without access to the Web it is also available on disk directly from Novell for US$9 to cover shipping and handling fees.

Contact Novell 1-800-861 2554

Other Options

There are plenty of other options available for would-be HTML authors. There are at least a dozen good shareware HTML editors for Windows and more for the other major computing platforms. The best list of Windows HTML editors (and the latest in Web-related programs) can be found at Stroud's Consummate WinSock Apps page at http://cwsapps.texas.net/, which contains mini-reviews of each program and direct links to shareware versions available for downloading.

If you are a beginner or an experienced HTML coder, it is a good idea to sample as many different HTML editors as possible, then pick the one you are most comfortable with. Even if you opt to use a program to automatically convert your word processing documents directly to HTML without your intervention, it is a good idea to learn the basics of HTML. You can be sure there will be times when you will need to go beyond the limitations of your HTML editor.

Even though there are many die-hard HTML coders out there who believe all Web documents should be hand-coded, these new HTML editors have considerably eased the process of creating large numbers of Web pages. It is now feasible for anyone to create their own Web pages, opening the Web to a whole new group of would-be HTML authors. ❑

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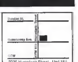

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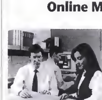
Fastnet, TRLabs Study Online Multimedia Potential

BY JEAN READ



TR LABS RESEARCH Dr Bruce Cockburn (left) affiliate professor at TR Labs with Nicole Sat and Jeremy Sewall (at back) U of A graduate students

TRLabs a telecommunications research consortium has implemented FASTNet the highest speed ATM (Asynchronous Transfer Mode) testbed in Canada.

The initial node located in Winnipeg became operational in June A second node to be located in Saskatoon is scheduled to come on line in September. Further TRLab locations and sites in Canada — TRLabs plans a location in British Columbia — will be linked using CANARIE (Canadian Network for the Advancement of Research Industry and Education) and WURCNET (Western Universities Research in Communications Network)

FASTNet will put TRLabs at the leading edge of multimedia research capabilities with potential applications in areas such as education medicine and the marketplace. "TRLabs advanced research activities in multimedia applications reinforces Canada's efforts to position our country as a leader in the development of communication technologies" said the Honorable Dr Jon Gerrard, Secretary of State for Science Research and Development for Industry Canada, commending on TRLabs announcement

The equipment and services which are at the core of the testbed were provided by AT&T Network Systems Canada and the Manitoba Telephone System (MTS) AT&T Network Systems Canada entered into a multi year million dollar deal with TRLabs in March of 1994 An AT&T Globeview 2000 ATM switch was installed at an MTS site in Winnipeg The switch allows for the simultaneous switching of data video images and voice It has a 20 gigabit per-second capacity

The switch is linked to TRLabs by high speed fibre optic cable and is capable of carrying in nine minutes the equivalent of a month of Internet activity To put it another way 20 Gb/s represents the equivalent capacity to transmit 1,600 copies of Herman Melville's Moby Dick in one second At the lab a 155 megabits per second ATM local area network has also been installed. The Saskatchewan second node will feature a Northern Telecom Magellan Edge ATM switch

Research Enabled

FASTNet will enable the TRLabs researchers to study signal traffic and develop applications. This in turn will enable telecommunications and information technology equipment and service providers to understand and plan the operating, complexities and cost implications connected with delivering multimedia services over the information highway

ATM technology enables high speed transmission of different communication signals — text, data sound images full motion video — almost at the same time over the telecommunications network Possible multimedia applications for this technology include video conferencing, distance education telemedicine and video-on-demand AT&T state that ATM tech

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nology is critical to supporting the next generation of communication applications.

Telemedicine would allow a specialist in a city hospital to consult with a rural practitioner and transmit video images of a patient.

Potential business uses of this technology would mean that people could work collaboratively without physically being together using videoconferencing and whiteboard. While education applications using broadband networks would let students be present in a class with a teacher at another location. Students could also access hypertext documents and work at their own pace on a course using a coursework on demand approach.

TRLabs has set up a World Wide Web Home page demonstrating some of the multimedia applications of the technology.

The address to browse this site is http://www.edm.trlabs.ca

TRLab's staff of 172 includes professionals from industry, professors, grad students, research, technical and support staff. They provide student training at the graduate level in the telecommunications area, and have connections with the Universities of Alberta, Calgary, Regina, Saskatchewan and Manitoba. In 1995 all of their grad students received employment offers or elected to continue their studies.

Labs in Winnipeg, Calgary, Edmonton, Saskatoon and Regina are involved in research in five main areas: photonics, networks and systems, wireless communications, network access, data networking and related software. "The opportunity for our graduate students to work alongside of industrial researchers at TRLabs gives them a clear competitive advantage when entering the workforce," says Dr. Joanne Keselman, Associate Vice President Research at the University of Manitoba.

TRLabs' major industrial sponsors include AT&T, AGT Ltd, Bell Northern Research/Nortel, Digital Equipment, ED TEL, LSi Logic, Manitoba Telephone System, NorthwesTel and SaskTel. With SaskTel TRLabs worked to develop an Analog Display Services Interface test set. Its purpose: to troubleshoot and diagnose any problems occurring on the SaskTel Calling Number Delivery System.

They also have numerous small business associates such as IRIS Systems, Develcon Electronics, Harding Instruments and Wavecom Electronics. When one of their small business associates, QCC Communications Sask, could not find suitable hardware to expand and improve one of their existing products, TRLab researchers designed and built a prototype four channel fax card. An interface document was included which allowed easy accommodation of the new hardware. QCC then modified its system software to use the new card.

TRLabs describes itself as the largest non governmental not-for-profit telecommunications research organization in Canada. It has an annual budget of over $8 million. One of its major projects is a $1.2 million optoelectronics research project.

"Both the advanced equipment and research talent we have are world class," says Glen Rainbird, TRLabs President and CEO. "We are excited about the opportunity to deliver significant results and benefits for our sponsors and the nation in the rapidly evolving and intensely competitive global field of telecommunications."

Their vision for the future includes video-on-demand electronically pumped to your TV at home. ❑

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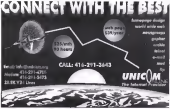

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Taking Advantage of Internet

BY KEITH SCHENGILI-ROBERTS

The Canadian Internet Advantage
Author Jim Carroll and Rick Broadhead
Publisher Prentice Hall Canada
Price $29.95
ISBN 0-13-226598-2
Softcover 522 pages 1995

A casual review of the computer section in any bookstore will reveal a dozen or so titles that promise to help you get connected to the Internet. There are still very few books that tell you what you can do once you're there With *The Canadian Internet Advantage*, the authors of the best selling *Canadian Internet Handbook* have managed to put out another excellent book aimed squarely at what organizations can expect out of getting connected to the Internet As with *The Canadian Internet Handbook, The Canadian Internet Advantage* sets a new standard for other business-related Internet books to follow

Both authors come from a strong business background Jim Carroll is a chartered accountant of 12 years experience and Rick Broadhead is the principal of an Internet consulting firm The authors not only have a way of explaining how the Internet works, but also have a keen sense of Canadian business and the economy This combination makes for a book that is a must read for people who work in business education, government health care or not for profit organizations who are interested in exploring the possibilities of the Internet.

The "Canadian Internet advantage" mentioned in the title of the book is the edge Canadian organizations can give themselves when they connect to the Internet The authors have a realistic sense of what the Internet can be used for — don't expect to find any half baked ideas about turning your company from rags to riches overnight here. They carefully examine all of the various reasons why an organization might want a 'Net-presence market research the dissemination of information public relations and electronic commerce among them The book looks at the ways groups and businesses can use Internet tools like e-mail the World Wide Web and usenet newsgroups to attract people to their site and how to keep them coming back for more information

The book concentrates heavily on the World Wide Web, which has fast become the focal point for people on the Internet The book is filled with examples of Web home pages from primarily Canadian businesses and other organizations accompanied by insightful analysis of what these organizations are gaining by being on the Internet. The span of organizations covered on these home pages is very broad, with extensive and representative examples of the types of organizations that can be found on the Web

In addition to laying down some Internet fundamentals to be aware of — like the somewhat anarchic nature of Internet culture — the authors also present ideas that will help you lay out your organization s strategy for getting on the Internet If you are in an organization seriously planning to get onto the Internet, all you need to know is here The depth with which the authors cover subjects like presenting a consistent corporate image, drawing people to your Web site and the pitfalls of not doing things right the first time show that the authors have really done their homework in this area

The Canadian Internet Advantage is an excellent book for those interested in exploring the commercial and organizational incentives for getting on the Internet It is an excellent companion to the best-selling *Canadian Internet Handbook* and gives a clear-eyed view of the Internet's potential for organizations The Internet can be another tool to advance the goals of your organization and it is up to you to decide how to use it. As the authors say "the technology isn't important — the opportunities are " ❑

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BY ROSS MACDONALD

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Those just back from Tralfamadore will be delighted Though not perhaps as well endowed as Montana Wildhack UFOs The Real Story is titillating in its own right But where Kurt Vonnegut only posited extra-terrestrials in order to interpret the all too human condition, Stanton T Friedman offers this CD-ROM as non fictive proof of their existence

Friedman is a "well known" nuclear physicist and UFO lecturer and author who has been chasing this story for more than 36 years Stranger still he now lives in Fredericton New Brunswick — as everyone knows a favorite pit stop for intergalactic commuters of all stripes and shapes Friedman has appeared on hundreds of TV and radio shows as well as in several documentary movies Real credibility however was bestowed in October 94 when Larry King hosted a TV special and dubbed him the Dean of Ufology"

A veteran more of transmitters than transporters, Friedman enviously lends credence to anyone claiming to have been kidnapped by aliens The disk contains accounts of such travels in text as well as a handful of short video clips of interviews with returnees

But the central focus of UFOs The True Story is a casual though comprehensive talk by Friedman about the existence of flying saucers in which he answers many of the ancillary questions you might have regarding the topic too Though you have the opportunity to play this monologue in its entirety Unity Publishers have made the experience somewhat interactive by offering a menu of numerous pre prepared questions which, when selected lead to the talk's relevant section. This causes a few jumpy starts and stops as you re often cutting in or out in mid sentence (at one point I thought my computer had jammed) but it is an effective means of tailoring your time with this CD ROM to suit your immediate interests

Where many might dismiss this whole topic as the ravings of a crackpot Friedman isn t one — or at least doesn t show himself to be one here As well as thoroughly supporting his claims of UFO existence he hasn t ignored the difficult questions or concerns of skeptics and actually devotes much time to criticisms and explaining why some of his evidence doesn t withstand scrutiny

One of his most interesting musings is on the issue of government cover-ups In video and text Friedman offers convincing evidence of large scale suppression by the US government and military Exercising America's version of Freedom of Information legislation, he shows us documents relating to UFOs which Friedman struggled to obtain in their entirety but which were entirely blacked out or heavily censored when finally forfeited

The most useful aspect of UFOs The Real Story is in its huge data base which includes an extensive bibliography on UFO-related publications and the texts of several articles and studies Friedman himself has written 60 such items alone There's also an interactive tutorial on how to get around in that mire of information, though all but the most virginal neophyte will find this "help tedious (it explains things like hot spots and how to click them)

Regardless of your personal politics UFOs.. The Real Story makes for a pleasant addition to any CD ROM library Aided immensely by a price at least as reasonable as Friedman himself it s a given that all kid napees and lapsed ET fans will buy this disk. But those with only marginal interest will find something to enjoy here too. ❑

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Photography Made Cheezy

BY ROSS MACDONALD

Photography Made Easy
From Villa Crespo Software
MSRP US$49.95

Our old friends at Villa Crespo are at it again — that's the company that gave us the abysmal "Escape With Your Life" CD-ROM a while back. Well, this time around they've come up with a disk that ought to alienate even more people than that previous self defense package for women — it's called Photography Made Easy.

Despite the diversity of those very different topics, both products share one extremely notable element — absolutely the worst sound quality you'll ever hear from any digital medium. Perhaps the estrogenically paranoid among you decided to take a look at "Escape With Your Life" despite my desperate caveats against it. If so, and if you're still not convinced of the perils of Villa Crespo, Photography Made Easy will bring back all the anger at being ripped off with painful immediacy.

If you can hear him through all the audio "fuzz," you'll get to know our host, Brian D. Ratty, a graduate of the Brooks Institute of Photography and holder of an honorary Master's degree from that same school, according to the box.

But you won't be needing any Master's degree — honorary or otherwise — to follow the basic photography lessons offered here. Which is not to say that Photography Made Easy is entirely useless, just that it's of only marginal practicality to anyone who's ever even had their picture taken.

An early lesson, for example, takes us step by step by painful bloody step through the complex process of — loading film into the camera!

Even a professional photographer will need lessons to memorize what Ratty obviously considers a complex procedure, as testified by the fact that it takes him a full 69 seconds to explain it. That becomes especially salient when you realize that only about five seconds (or less) are required to actually load film under normal circumstances.

Of course, there's more advanced stuff included here too. But, paradoxically, that's distilled down to such a simplistic level that it's hard to imagine anyone not already understanding everything Ratty has to tell us... before he tells it.

Like most people, I have a camera. But what comes back from the drug store all too often bears little or no relation to what I'm sure I remember seeing through the viewfinder. A common phenomenon, and one that Photography Made Easy proposes to solve.

Complex issues like photo composition are covered in so much less detail than the august loading of the film. Ratty takes a whole 28 seconds to explain the topic of identifying and creating lines of composition, while — you remember — he needed 69 seconds to get through loading film.

Not All Bad

On the other hand, Photography Made Easy does contain quite a few eminently useful tips on equipment care and maintenance that I'm sure would benefit even the most practiced shutterbug.

There's a good explanation of the workings and abilities of the various lenses, for example, and tips on choosing and purchasing equipment. One of the best of these features is a printable database report to help you keep track of all your gear, including the serial numbers, a description of each item and the purchase price. Your insurance agent is bound to become Villa Crespo's biggest fan. ❑

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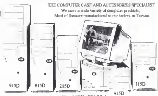

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An Adventure Fit For a Trekkie

BY GORO GOBLE

Star Trek — The Next Generation "A Final Unity"

By	Spectrum Holobyte
Street Price	$60
System Requirements	486 DX 8 MB RAM 2X CD-ROM Drive 16 MB Hard Drive Space 486 DX2 66 MHz (or faster) CPU recommended

Spacing out to where no gamester has gone before we find STTNG "A Final Unity," the eagerly anticipated graphical adventure game based on the popular syndicated television series. In it one must guide the USS Enterprise and its oh-so familiar crew on an oh-so-familiar "save the galaxy" mission. Along the way one navigates through 3-D space at warp speed traveling from star system to star system beaming down away teams to numerous planets and engaging in combat or negotiation with alien spacecraft.

Dialogue is delivered with spirit and intensity by the core actors from the TV series (each recorded more than 60 minutes worth) and the program is laced with cinematic cut scenes effectively imparting the experience of a Star Trek TNG television episode.

As one might guess the Enterprise bridge is the central hub and main interface of A Final Unity with all the main characters seen manning their stations. From this screen, "hot spots" allow access to most facets of gameplay including engineering, transporter, computer, holodeck (for viewing cut scenes), navigation and tactical areas.

Of these engineering and navigation are the most critical and although both will undoubtedly be fascinating to Star Trek fans beginners may initially want the digital Worf to handle the intricacies of the former. This should allow some time to get a feel for the more intriguing and in-depth ship computer (with its impressive database of information on the ship and galaxy) and navigation (astrogation) sections.

At the astrogation window one can warp to thousands of different star systems and then employ impulse power to hop around different planets within these systems. There's a lot of stuff here and much of the gamer's time will be spent controlling away teams on their exploration of planets and their inhabitants.

Unfortunately once into the meat of the story system crashes and lock ups can be expected with increasing regularity. In testing lock ups occurred almost every half hour on a 486DX2 66 with 8 MB RAM during the final twenty hours of play. Message traffic on CompuServe would indicate that these crashes are commonplace to almost all hardware configurations and undoubtedly patches will begin appearing in short order.

Star Trek The Next Generation "A Final Unity" is a stylish tribute to the Gene Roddenberry creation and its legions of fans and they should find this product an addictive new chapter in the Star Trek experience. Requiring Chief Engineer Geordi LaForge to hover over their shoulders and navigate them through the bugs and crashes will be of little deterrence to their "continuing mission to seek out new lives and new civilizations." Non-Trekkers, on the other hand, probably won't understand. ❑

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CD Opens Barnes Collection to All

BY JEAN ALLEN IKESON

A Passion for Art
From Corbis
Price $60 est street price

Stunning Entertaining Informative Polished. *A Passion for Art* opens Dr Barnes famous but previously restricted postimpressionist art collection to the public in a way that sets a new standard for art CD ROMs

You do not need to know anything about art history to appreciate and enjoy the collection. You are provided with guided tours complete with commentary from renowned art critics This program is so smooth and well thought out that I am not sure that a visit to the actual Barnes Collection without a guide could provide as rich an experience

If you are an art aficionado then the commentary along with the archive section will excite you. Many documents concerning the paintings that had until recently been thought to be lost are included Many of the paintings by great painters are relatively unknown due to the restrictions on public access that Dr Barnes imposed until recently

Barnes amassed this spectacular collection in the 1920s but closed access after critics slammed what was then thought to be too avant garde These works include many by Renoir Matisse and Cezanne along with many other late nineteenth and early twentieth century artists

The hold was lifted to provide funds needed to maintain and renovate the gallery This allowed Toronto as one of three cities worldwide, to host a viewing at the Art Gallery of Ontario last spring to record crowds Some 600 000 people made reservations to attend a showing that featured the largest collection of Renoirs in the world The show was so successful and the AGO made so much money from it that it proved that art could be just as popular and just as profitable as sports

The CD-ROM of the Barnes collection is available for both Windows and Macintosh from Corbis Publishing and is distributed by Maxis For Windows you need at least a 486/25 8 MB RAM 256 color Super VGA, double-speed CD drive sound card and mouse The Mac version requires a 68040-based machine or a Power Mac 8 MB RAM and a double-speed CD ROM drive

Setup (we looked at the Windows version) loads quickly (took 10 seconds!) and makes maximum use of existing, easily avail-

Paintings by Cezanne (top) Matisse (middle) and Renoir (opposite page) These images come from the Louvre's web site Graphics found at the Web Museum online

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able to do things without demands for esoteric drivers or subprograms. Yet the results are superb. One suggestion: turn off your screen saver before you start the program. The guided tours last 10 to 15 minutes each and it is rather annoying for a screen saver to interrupt part way through. You are allowed to view the Barnes Collection your way. Four guided tours by famous art critics tell the story of the Barnes Foundation and the eccentric Dr. Barnes, take you through a virtual tour of the gallery, provide a lecture on female nude paintings and a tour of The Dance, a mural that Matisse painted specifically for the Barnes Foundation.

My only criticism of the program is that while you are told what the paintings are during the tours, they are not labeled. However, if you want to study each picture in detail, the gallery button allows you to take a virtual stroll though the Barnes Foundation. Move from wall to wall or room to room. Clicking on a particular painting allows you to view each picture and zoom to full screen detailing that scrolls. While studying a specific painting, you may click on biographical information about the work and its creator, view more works by the same artist or see how it fits in a timeline.

There are over 330 works in the CD but unfortunately only some of these are shown in color and have the ability to be enlarged. The rest of the Barnes collection shows in black and white on grey walls. It is like being at a gourmet banquet and only being allowed to sample part of the food. However, it is a superb sample. Perhaps this criticism is a bit greedy because it is a feast to be relished.

One of my general gripes is that many CD programs are just large programs that happen to be on a CD. Multimedia CDs should offer more and do tricks that other formats cannot. This CD does just that. In this case, you are able to sit back and enjoy the tour with experts. Real voices and individual opinions — not elevator voices — give the tours a personal touch. And no tired feet and peering under bifocals to read laborious museum labels. The audio clips would not be nearly so effective if they were printed in a book.

Besides the audio accompanying the cinematic tours and beautifully digitized pictures, *A Passion for Art* has an index that no coffee table art book can match. A click sorts the paintings by painter or by title. Scrolling down the list produces a thumbnail color view of each painting. What a great innovation. You may also put together a customized slide show and set the time interval between slides. This could be useful for teachers who want to compare certain painters or subjects.

Beautifully reproduced archival material such as a telegram from Matisse requesting to view the collection, sales receipts for masterpieces and audio reproductions of famous contemporaries such as Gertrude Stein and John Dewey give one a hunger for future CD's from Corbis. Bill Gates's brain child has set the standard. Please Sir, give us more.

If you bought Microsoft Art Gallery and thought it was lovely, this program will make it seem a bit like a yawn. The audio commentary, rich archival materials and overall presentation put the art into context and make it come alive. It is not just a picture CD but a terrific story as well. The street price is also reasonable considering the content: around $60. ❑

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The Corbis Connection

Corbis is a story in itself. Established by Bill Gates, it stirred the art world a few years ago by buying the electronic publishing rights to art in galleries all over the world. However, this has been extended to historical documents, photography, science and culture. These fine digitized images are "rented out" to other groups. However, the plan is for a series of spectacular programs from Corbis that should satisfy the connoisseur and the historian.

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GAME REVIEW

A Long Time Ago In A Galaxy Far, Far Away...

BY RYAN JAMIESON, JOSH COLLERAN

Dark Forces
From: LucasArts
Platform: DOS CD-ROM
Price: $69.95
System Requirements: MS-DOS 5.0 or higher, 386DX-33 (486DX-33 or higher is recommended), CD-ROM drive, 8 MB RAM, keyboard for input (joystick and mouse optional), 256 color VGA/MCGA graphics, 3.5 MB required for minimum install. SoundBlaster or compatible other sound cards supported.

Doom gamers beware, there is a new CD from LucasArts — the people who brought us such games as Rebel Assault, X-Wing, Tie Fighter and Indiana Jones and the Fate of Atlantis. It is called Dark Forces, and that may steer you away from battling mutants and hell spawn. This game is one of many spinoffs of the popular *Star Wars* movies, and like those spinoffs, Dark Forces has proven to be successful. Dark Forces uses a 3-D game engine that is similar to those used to create Doom and Wolfenstein 3-D, but with some significant improvements.

- Realistic movement options such as jumping, crouching, looking up and down, and injuries as a result of falling from great heights
- Higher refresh rates for smoother animation. High graphic detail
- Each playing level designed by architects and mathematically defined
- Easy-to-use point & click interface

These factors contribute nicely to the overall effect, which I must say is absolutely stunning. You will be even more impressed by the vast selection of weapons, the diversity of enemies, the excellent atmospheric effects, and the amazing animation sequences between levels. Another interesting game feature is the presence of "Environmental Hazards." In addition to the attacking Imperial forces, you must constantly be on the lookout for mines, welding robots, gas, chemical storage units and power generators.

After listening to the introductory score (including the Star Wars theme) and an abrupt animation sequence, you are scuttled along to a briefing menu, where you land orders to infiltrate an Imperial Star Destroyer and retrieve plans for a new Imperial weapon: The Death Star. The game continues integrating 3-D free-form exploration, animation and an intriguing storyline.

If you're expecting more of the bloodthirsty guts 'n' gore genre, you are in for a rude awakening, which may relieve parents worried about excessively violent games. The RSAC Advisory label on the box is quite unnecessary. The Stormtroopers in Dark Forces die in an explosion of sparks, and with the exception of the sewer creature's gurgle of blood, there isn't a drop of red in the whole game. If anything, the deaths in Dark Forces are cute.

One of the game's handicaps is the absence of modem playability. There is no Deathmatch, and Dark Forces is not Network-playable, so don't be looking for game add-ons in the near future.

There are some other frustrating details that can leave you in a state. One is the fact that you cannot save your game. The program makes a file for each playing character but only recalls what mission you are on, meaning that if you make it halfway through the 5th level and quit, you can only start at the beginning of level five. It was a shame LucasArts didn't consider these things during the year it took to make Dark Forces, because otherwise it would be a perfect little game. ❑

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Sage Advice on Telecommuting

BY KEITH SCHENGILI-ROBERTS

The Underground Guide to Telecommuting
Author Woody Leonhard
Publisher Addison Wesley
Price $24.95
ISBN 0-201-48343-2
Softcover 346 pages 1995

Rating
Information content ★★★★
Readability ★★★★★
Intended for: **Beginner / Intermediate**
Overall Rating ★★★★

In the past few years, fast computers, fax machines and modems have brought the idea of telecommuting to reality. More and more firms are opting for partial or total conversion to have their workers "telecommute" to work, either for productivity or financial reasons. If you are considering doing your job via telecommuting, or if you are a manager considering its costs and benefits, this is an ideal primer.

Subtitled *Slightly Askew Advice on Leaving the Rat Race Behind*, author Woody Leonhard is known for producing other slightly askew computer books, including a few titles in the *Underground Guide* series, and collaborating with Barry Simon in the *PC MOM* series of books. He is also the ideal writer for this book, as he lives in a sleepy rural community on a mountain-side in the States.

> ***"Beware the SOHO siren song. You're every bit as smart as the typical office worker. You need all the horsepower of your multi-billion dollar competitors, right there in your telecommuting office, and you need to learn how to use that horsepower better than they do. Don't let the size of your operation cow you into making bad business decisions."***

This book is loaded with good advice. If you want to know what sort of computer to buy, how many phone lines you should have installed, and what type of services you can get from the post office and from courier companies, it's all here. Leonhard has a way of cutting daunting business issues down to a manageable size. His advice on getting a portable computer is a case in point. Leonhard makes the point that few people really need a portable computer. But if you are going to get one, he suggests that you get it as a second computer to fall back on when the inevitable happens and your original computer becomes unavailable for some reason.

Leonhard also deals with the social aspects of telecommuting, and provides advice on how to keep in touch with things at the main office, how to create a comfortable working environment, and why you shouldn't feel guilty about packing off your noisy kids to daycare when you need some quiet to work.

Given what could be a very dry topic, Leonhard manages to explain some of the finer details of what's involved in telecommuting without putting the reader to sleep. He is an engaging author, and even if you are not seriously considering telecommuting, chances are you'll find yourself drawn to the book if you pick it off the bookshelf. It makes you wish that other computer books were as down to earth as this "underground" guide. ❑

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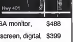

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Out comes the dreaded dictionary to check three or four words per sentence What can be spoken in a few seconds now takes hours to write Children everywhere have been silently hoping someone would come along with a better and happier solution Enter the software companies

A child's desk traditionally contained pencils paper, ruler assorted books and an appropriate dictionary This description probably has not changed much this century Dictionaries themselves have evolved from ancient ones which translated or defined rare words to the venerable Oxford English Dictionary with 400 000 entries Both the desktop and the dictionary are changing rapidly with the computer revolution

A dictionary of any sort should provide the correct spelling pronunciation guide part of speech definition usage example and various forms such as plurals tenses etc Computer dictionaries are now adding to this list with spoken pronunciation multimedia interactivity and word games to stimulate children to study language and be comfortable with it

The first generation of children s dictionaries on CD all offer some improvement over paper varieties In particular My First Incredible Amazing Dictionary which is designed for young children makes great strides in taking the pain out of the written word and making it fun for young readers After loading it and trying it out for a few minutes my six year old son could hardly wait to shove me aside to play with it And play with it he did for several hours, quite happily

Two other dictionaries on CD the Macmillan Dictionary for Children and Merriam-Webster's Dictionary for Kids both offer some improvement over books and are aimed at perhaps second grade and older Each has its strong points yet neither of them offers a really phonetic search machine that is at least as good as the spell checkers commonly packaged with word processors In this respect they were a bit of a disappointment

What all of the dictionaries do well is pronounce the word All but the Merriam Webster read if needed the definition for the child They are a bonus for building reading and comprehension skills for young children or children learning English as a second language

What help is looking up the definition of a word if the child has trouble reading even two or three words in the excerpt? In remedying this problem CD dictionaries for kids are a must buy for primary schools and home computer owners

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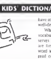
My First Incredible, Amazing Dictionary

From. Dorling Kindersley Multimedia
Requirements At least a 386SX 4 MB of RAM MPC-compatible CD drive sound card and speakers mouse Windows and a SVGA 256 color display A Mac much version is available
Street Price $59 90



Setup only used 1 7 MB of my hard drive, making it the lightest of the three dictionaries reviewed here But I wish their Windows icon was a bit more intuitive The company name means nothing to a five year old The design is aimed at children ages three to seven Three may be a bit early, but there is a fun game called "match that sound" that would be appropriate for three and four year-olds It really does not have much to do with a dictionary, but is a well-designed preschool matching exercise

While it only contains an essential vocabulary of 1 000 words the dictionary serves young readers very well Children are treated to a visual example of each word along with a definition that may be read or spoken by the program A nice feature is a box that adds more words related to the original one

For example *farm* also shows what is on the farm and lets children jump to additional screens for each new word. So if a child happens to be writing a story about a trip to the farm, additional *farm* words are at hand What a great way to encourage writing Writer's block can be a formidable problem even for young children The illustrations accompanying each word provide interactive fun. By clicking on the picture a sound or animation results

Another useful feature is that the page containing the word, definition and picture will print reasonably well, even on a dot matrix printer This is great way to develop a customized word list for each student I also like the effort that was put into writing easily read and understood definitions My six-year-old read about half of them without help He was charmed by the program and happily jumped from word to word for two hours

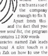
An alphabet shows at the top of the screen for word searches Clicking on a letter produces a chart of 20 words and pictures This helps children decide which word they are looking for without a sophisticated spelling ability Highlighting one of these words produces a whole screen of that word There is also a quick search button that does a mediocre job of locating phonetically spelled words. A comprehension game called *guess what* encourages children to read and make choices

In response to questions such as, "what do apples grow on?" Three choices with pictures sometimes silly help build reading skills Another game called *spell it*, which has three levels of difficulty, would make a nice classroom exercise A picture of the word appears and it is spoken If too many wrong letter choices are made as the child tries to spell it, the word is spelled out

The Macmillan Dictionary for Children

From. Macmillan
Price Around $35

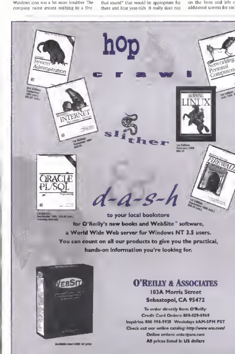
This title is designed for children aged six to 12 Outside of only requiring a VGA video card, its Windows requirements are the same as the previous program A Macintosh version is also available Setup used about 4 5 MB on my hard drive One bug that the company has known about for two years is that the program crashes if you have WordPerfect for Windows installed



You must scroll through your win.ini file in the edit utility of DOS for the paradox engine and type a semicolon in front of the line that reads "net type = 2" I would have thought that such a bug would have embarrassed the company enough to fix it Apart from this and the fact that you cannot save *my own word list*, the program is a good one It contains 12 000 words

A cartoon character named Zak leads children throughout A nice touch is a guided tour with Zak on how to use the dictionary The program is intuitive but Zak makes it that much easier Clicking on a letter produces twenty six more choices for that letter, such as ban, bet big etc to help locate the word Highlighting one of

➤



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these gives a scrolling word list starting with those letters.

The screen with the desired word provides pronunciation marks, plurals, other verb forms, parts of speech and so on. The defined word or any single word in the definition will be spoken if clicked on. A usage example is provided along with alternative definitions. The definitions are similarly written to those in Merriam-Webster's Dictionary for Kids, but not as simply as in My First Incredible, Amazing Dictionary. Zak sometimes offers an opinion of the word. It might be a yawn or a zowie or a fun animation. Words may be added to *my word list*. This would be a terrific feature, if only you could save it. Make a list of this week's spelling from school. Then your child can use this list to play hangman or use in a spelling bee. What a great way to take the pain out of studying spelling. This is a feature that all the programs should have.

Merriam Webster's Dictionary for Kids
From Mindscape
Street Price $65

Merriam Webster's Dictionary for Kids targets children from eight to 12. It has the most ambitious list of words, at 33 000. The emphasis is on quantity rather than colorful illustrations or animations. Minimum requirements are a 386DX, 4 MB RAM, SVGA video display, CD drive, sound card, a mouse and Windows. No Macintosh edition is available. Setup lets you choose between optimal with 14.2 MB of hard drive or minimal with 4.5 MB of hard drive. If you have a slower CD drive, the former will give better results. The minimal installation runs smoothly on my triple-speed.

The opening icon says *Dictionary for Kids*, which is an improvement over the company name or initials. A soft bound word list of 1278 words divided among grade levels one to seven is included in the box. If your children see you as the incarnation of the Marquis de Sade, you could use it to ensure that they can spell and pronounce all the words up to and including their grade level. Mine do, so perhaps I will give it a try.

The word search is nonphonetic, but pronunciation marks, parts of speech and definitions are provided. Plurals, verb conjugations and adverb forms are also given. The word is spoken but the definition is not. However, by eight years most children should be able to read the definitions. You are able to print the word and its definition but the printout is skimpy and uninteresting. If three definitions are provided, only one prints.

More space is given to copyright information than to the essentials. In fact, one entire button gives endless information about the programmers who tested the program and the company. This rates a double yawn from children.

Illustrations accompanying the definitions are sparse, as opposed to the two previous programs. There are five word games, each with three difficulty levels: monster in a box (the monster eats his way out of a box if you do not guess the letters to the mystery word in time), read our lips (one or two player, a memory game), cryptograms, alphabet soup (hidden words are matched to a word list) and danibot VI (a word manipulation game).

For a dictionary to be useful to school children, you should be able to easily get out of it and into a word processor. On my system with a NEC triple spin CD drive, the program will load, but after opening and closing another program, the dictionary will not reload. Not even exiting and re-entering Windows will solve it. I have to reboot to get it to load. I tried reinstalling the program but the fault did not disappear. The fault does not occur on my spouse's double spin Toshiba.

The Bottom Line

For early readers, My First Incredible, Amazing Dictionary is a must for home or school. It is an outstanding, well-organized and well-thought-out program. The Macmillan title is a good second step and especially useful for helping children learn weekly spelling lists. The Merriam Webster is the heavy weight for volume of words at 33 000. ❑

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THE PC CLINIC

Keeping a Clean House

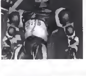
BY CUB LEA

There's nothing like a ton of deadwood on a hard disk for scaring PC owners into believing they need upgrades. Upgrades that aren't always necessary. It's not uncommon for a well-used 386 to accumulate more megabytes of useless files than useful data. Fortunately, it's often possible to prune enough dead weight from a hard disk to postpone the need for an upgrade for another two or three years.

The precision pruning usually done by support professionals and technicians is usually too risky for the average user, but freeing an extra 10-50 MB of free space on a tight system is easy for any intermediate level user once they know where the deadbeat data hangs out. In fact, useless data is so prevalent on IBM compatibles that it's usually possible (but never advisable) to trim as much as 25 percent of the data on a system that's never been used without ever affecting its performance.

A Temp Solution

The first files to go should be Windows temporary files. In almost every case, they're a complete waste of space. If you've used any serious Windows application for more than a month, you probably have useless TMP files on your system which are doing nothing but taking up space. Users who turn off their computers before properly shutting down Windows can accumulate hundreds of dead TMP files a year.



Depending on how the system was set up, TMP files could be hiding in the C:\DOS directory, C:\WINDOWS, C:\TEMP or a TEMP directory tucked inside of WINDOWS. These files are distinguishable as trash by the characteristic " ~ " at the front of their name and TMP at the end (e.g. ~WRI3125.TMP). Using File Manager, DOSSHELL or DOS dir and del commands, find the directory containing these files and delete every file beginning with ~ and ending in TMP. If you're working from the DOS prompt and you're in the directory containing the useless files, use this command to erase them all at once:

```
del ~*.TMP
```

It's important that you only erase TMP files because EXE, DOC and other files with the same "~" character might be needed later. Don't risk losing them for the little space they usually take up.

Here's a trick for making sure you never have to do the job again. Start

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Notepad and Open AUTOEXEC BAT by typing C \AUTOEXEC BAT in the File Name box (top left corner) Add the following at the very start of the file

```
del c \dos\-* tmp
```

then press Enter Save the file, and Exit (If you found the TMP files in C \TEMP type del c \temp\-* tmp instead If you found them in a TEMP directory inside of the Windows directory, type del c \windows\temp\-* tmp etc) From now on every time you start your computer DOS will make a lightning fast check of the directory where TMP files are stored and automatically erase any deadwood it finds If there's nothing to erase, DOS will display a congratulatory File Not Found message letting you know that you quit Windows properly the last time you used it, and no stray TMP files were left over

Deadwood in \DOS

The next best place to look for deadwood is in old DOS directories If you've upgraded DOS since you bought your computer you probably have 1 10 MB of leftover DOS versions you'll never need again

MS DOS versions 6 0 and higher have a new tool for dealing expeditiously with this waste If after a month or so you've discovered no reason to switch back to your previous DOS version you can erase your dud DOS directory by typing DELOLDOS at any command prompt (C:\> C> C \WINDOWS\>_ etc), or by clicking File and then Run from Program Manager and typing DELOLDOS in the Command Line box

Erasing an unwanted version of DOS 5 0 might free up as much as 3 MB unneeded versions of DOS newer than 6 0 are probably using up at least 4 MB and possibly as much as 10 MB each No small potatoes if you're still tied to a 60 MB hard disk.

Sometimes you'll have several OLD DOS directories on your system If so you can erase them quickly by highlighting any OLD_DOS directory from File Manager pressing Delete and telling Windows to erase everything when it asks about specific files

You can also trim a lot of fat from your current DOS directory without causing serious problems particularly if you have DOS 6 0 or higher Don't use the built in antivirus program? You'll free up well over a megabyte by killing all files in the C \DOS directory starting with MSAV and MWAV Don't use Microsoft Backup? Clear nearly two megabytes by erasing all files starting with MSB and MWB Don't use DOSSHELL? Erase all files starting with DOSS and as much as another meg is freed up Don't want disk compression? Kill all files starting with DRV and DBL for another half megabyte or more Use PC-DOS DR-DOS or Novell DOS? Check the manuals they also have goodies you don't need which could be taking up precious hard disk space

In most cases it's wise to stop your DOS pruning here, but you can usually erase a lot more files from MS DOS 6 0 or higher without ever noticing it as long as your system is not a laptop, has a VGA or SVGA monitor and you don't use DOS HELP or any DOS programs older than 1992

The files most users will never miss include all files starting with A ED EG FA G HELP I K, L, N Q, R and X as well as COUNTRY SYS DELTREE EXE DISKCOMP COM DISPLAY SYS DRIVER.SYS, FASTHELP EXE, FASTOPEN EXE, FC EXE, FIND EXE, MOVE EXE SORT EXE SUBST EXE, TREE.COM VSAFE COM and XCOPY EXE Just to be on the safe side make a DOSTEMP directory move these files into it and wait a month before deleting them just to be sure you're not erasing something you were never told you needed Add another meg and a half of free space if you can do without the whole list

Cleanse Windows

The WINDOWS and WINDOWS\SYSTEM directories probably contain several more megabytes of files you'll never need, particularly if you use Windows for Workgroups but don't use any of the Workgroups features such as mail scheduling or fax Never erase a Windows file you don't recognize and expect things to operate properly Always move potentially expendable files to a temporary dumpsite directory and wait a month or two before deleting them In general it's best to leave Windows pruning to an uninstaller program designed for the job or a technician who knows which programs need which files.

Continued on page 125

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A Basic Guide To The Internet Listserv

BY IAN GREGSON

Have you ever walked in to a meeting room full of say 250 people all with a common goal and speaking one at a time rather than all at once? The odds of meeting such a group are not in your favor, unless it is part of a listserv

A listserv is a meeting room full of people all with a common interest. But instead of talking over the top of each other everyone speaks in turn, one at a time, in a very orderly and productive manner

Often overshadowed by the likes of the World Wide Web, the listserv remains something of a mystery to many new users of the 'Net. When they are used effectively, listservs can get you the right amount of information in the least amount of time and at the least cost

The listserv exists — in contrast to the Web or any other area of the 'Net you visit — to retrieve files and information The listserv computer brings messages directly to you and saves you online time by allowing you to use your off line e-mail reader

As with the variety of subject matter on usenet there is a listserv for just about every conceivable (and inconceivable) subject on Earth. Subjects range from agriculture to weather to sport to out-of-body experiences. There are thousands of listservs located at many different sites around the world

As an example say you are a janitor at the local high school and want to know what janitors all over the world are cleaning their bathrooms with.

Since there is a listserv for janitors at the University of Kansas, you simply sign on to the janitors' listserv and once you receive confirmation are free to send as many messages as you see fit requesting information on the latest in bathroom cleaning products Within 24 hours, you'll get a response

How To Sign On To A Listserv

Using your regular e-mail program, send a message addressed to the listserv computer Using the janitor listserv as an example,

Address listserv@ukanvm.cc.unkans.edu
Subject: blank
The message should read. subscribe janitor (your name)

This will get your e mail address subscribed to the list You will then receive conformation of your subscription and some very important guidelines for that particular listserv

You can then send messages to the janitor listserv via the address janitor@ukanvm.cc unkans.edu

You must recognize the difference between the listserv address and the listserv computer address The difference between the two listserv addresses is similar to an apartment address and a street address You may live at 1367 Broadway in apartment 322 but if the #322 is not included in your address you may not get your mail The listserv@ukanvm cc.unkans edu is analogous to the building address janitor@ukanvm.cc unkans edu is analogous to the apartment number

Any time you need to send a message to the lists use the listserv address Any time you need to delete yourself from the list see who else is on the list or change your delivery method send a message to the listserv computer address Listserv commands will be sent to you when your subscription is confirmed, along with the e-mail address of the moderator.

Depending on the subject matter of your listserv you can expect to have anywhere from 10 to thousands of other subscribers on the listserv Obviously the more generic the subject matter the larger the subscription base

Listserv Do's and Don'ts

A listserv cannot cook your breakfast for you but it can recommend what to eat and how to cook it !

A listserv should not be used for sending attached files. Since there are many methods of attaching files to e-mail messages It is simply not worth sending a jpeg image of yourself to your fellow 8,000 subscribers Most subscribers will not be able to read your attached file and it also decreases the amount of "bandwidth" through the listserv computer

ASCII text incorporated into the body of an e-mail is the only safe way to transmit messages through a listserv Text versions of newsletters are permissible depending on the overall size (There may be a load limit on the size of message sent to a listserv computer)

Stay on topic. The moderator may or may not jump privately or publicly into a heated discussion on the latest toilet bowl cleaner. He or she may just let you make a fool of yourself and let you skulk off into your own little corner after the flames arrive

If your discussion involves only one or two fellow subscribers, take the discussion to private e-mail (regular non listserv e-mail) This will save further embarrassment on your part and further yawning on the part of all the other 7 998 subscribers.

As with other e-mail netiquette do not use capitalized text (unless to emphasize), use spaces between paragraphs and most of all, read your message at least twice before firing it off to all 8 000 members of your list.

Finding listservs

Any Internet book worth its salt will have references to listservs Any of the Internet magazines should occasionally post any interesting listservs

Online information can be gathered from the usenet newlist list where pretty well all new listservs are announced

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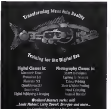

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Basic Guide to Listserv

Continued from page **124**

Posting a message to a relevant subject area on UseNet will probably give you a raft of responses.

On the WWW simply throw in the word "listserv" as a search string and you will have enough information to keep you occupied for at least a week.

When you finally end up on a listserv that means something to you, you will be amazed how many people feel the same way you do about the subject matter. You will also encounter opposition within your subject matter. When a listserv works, it can be the greatest thing to happen to you on line.

Sharing feelings and information on any given subject matter can give you an incredible sense of belonging. The fact your co-subscribers live in South Africa or Norway has nothing to do with it. ❑

Ian Gregson *is a freelance writer and the moderator of two listservs on the Internet. The Amputee listserv and Disability Sport listserv are both located at St. Johns University, Queens, New York. For information on these two listservs contact igregson@wimsey.com*

Keeping A Clean House

Continued from page **123**

Unwanted Backups

The next space hog to seek out is the .BAK file. Many applications preserve backup copies of your work in case you're not satisfied with your most recent revision, and it's surprising how many users never realize they exist. Over a couple of years, BAK files can chew up dozens of megabytes on a well-used office computer. There's no quick way to get rid of them from DOS. Hunting through every directory with File Manager or DOSSHELL is probably the quickest manual method if you don't have access to one of the many freeware programs that do the job automatically.

Don't get carried away with your pruning — a lot of files with unusual extensions or characters such as .$$$ or .OLD might be more useful than you'd guess from their names. As long as you have the space, it's usually advisable to keep anything that holds any promise of being useful later. Files no one but an expert should erase include all old AUTOEXEC.BAT, CONFIG.SYS, WIN.INI and SYSTEM.INI files. These old duplicates usually have cryptic extensions such as WIN.NDW, SYSTEM.SYD, CONFIG.$$$ or AUTOEXEC.UMB. They take up very little space, and could provide a technician with a valuable paper trail for diagnosing software conflicts at some time in the future.

Finally, remember to wait a week or two before running DEFRAG, SDEFRAG, SPEEDISK or any other hard disk optimization program once you've finished pruning. If you've erased a needed file, you may still be able to get it back using an undelete utility. ❑

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NAME OF BBS	YR	LN	AREA & BBS #	BPS	OPEN	FEE	MFG	SPECIALTY	SW
AARDVARK BBS	90	2	905 332-4127	168	00-24	$00	IFG	Gphcs, Games, File	RO
Ability Online	61	15	416 650-5411	288	00-24	$00	IFG	-- -- --	PB
Abyss BBS	94	1	416 751-2970	144	00-24	$00	MFG		??
Adv Home Automation	63	1	905 655-5844	144	00-24	$00	MF-	Support & Sales	MX
After Hours	94	2	416 481-8444	288	00-24	$00	IFG	For The Hounds	GA
Air Search & Rescue	92	2	416 259-0729	144	00-24	$00	CFG	Aviation, etc.	PB
Ajax Shuttle Line 2	93	5	905 658-4361	144	00-24	$00	IFG	Huge File area!	??
Ajax Shuttle Line 5	93	5	905 428-9024	144	00-24	$00	IFG	Internet E Mail!	??
Ajax Shuttle Line 6	93	7	905 686-4238	144	00-24	$00	IFG	Internet E Mail!	??
Ajax Shuttle Line 7	93	7	905 686-4234	144	00-24	$00	IFG	50+ Online Games	??
Ambassador Board	88	10	905 794-1199	288	00-24	000	IFG	Truly Interactive	WI
Anchors Away	94	1	905 795-2750	96	00-24	$00	MFG	Online Sales	??
Animal Crackers BBS	92	1	1905 533-6572	144	00-24	$00	IFG	New User Support	RO
Anime World	94	1	416 920-4626	168	00-24	$00	MFG	Japanese anime	??
Another System	95	1	905 940-3608	288	00-24	$00	CFG	Online Game Base	WI
Apocalypse	94	1	905 567-4702	144	00-24	$00	CFG	Wicked new BBS!!	RG
Arcadia Online	94	1	905 751-8335	192	00-24	$00	CFG	+15 Onliners, CD	RG
Asian Amateurs	92	4	416 361-6092	144	00-24	$$$	-F-	Amateur Models	PB
AutonomousCollective	94	2	416 972-6719	288	00-24	$00	IFG	Internet/Adult	PB
BARE BONES	65	3	416 652-2655	144	00-24	000	IFG	Online DOOM II !	RA
BARE BONES II	65	5	416 652-6786	144	00-24	$16	IFG	7 Gigs of Files !	RA
Back of the BRAIN	63	1	416 924-1570	144	00-24	$05	CFG	Msg's & Onliners	WM
Bawdy Talk BBS	93	1	905 764-0906	96	00-24	$00	CF-	Many Good Files !	MX
Beasley's Den Node 2	91	2	905 949-4430	144	00-24	$00	IFG	No File ratios	MX
Beyond Akira	93	10	416 481-9101	288	00-24	$90	IFG	Good files	??
Bible DrWho & Telecom	92	1	905 792-7247	96	00-24	$00	CF-	BibleStudy&DrWho	PB
Black Lace BBS	92	12	905 669-2022	24	00-24	$10	IFG	Multi-Line Chat	??
Bloom Beacon	93	1	416 281-5924	96	00-74	$10	MF-	-- --	??
Business Distric	91	1	905 472-6279	288	00-74	$00	CFG	Business Database	SP
Buy + Sell DataBase	91	1	416 964-6846	144	00-24	$00	MFG	-- --	HM
CAF Canada Support	93	2	416 267-0935	288	00-24	$20	IFG	Wide Variety	PB
CCMA International	93	1	416 502-1080	144	00-24	$00	C--	Business Info	WI
CRSOnline	61	200	416 213-6002	168	00-24	130	MFG	Largest in Canada	PB
CRSOnline	61	700	416 213-6003	166	00-24	130	MFG	Largest in Canada	PB
Cabaret	93	3	416 298-2530	96	00-24	$00	MF-	Come to the	MX
Canada Online	94	8	905 676-2550	288	00-24	$$$	IFG	4 Player Doom	GA
CanadianSpaceSociety	95	1	905 458-5907	96	00-24	$00	MFG	Can Space Promot	QB
Cannibal Bar & Grill	88	1	905 820-3136	96	00-24	$10	MFG	A unique BBS	RA
CND.ORG.	95	3	1905 666-6735	288	00-24	$16	CFG	Chat/Files/Games	GA
Cdn.Aerospace Hist'y	94	1	905 945-0995	192	00-24	$00	IF-	Avrow Arrow Hist.	WI
Chez-Nous BBS	93	1	1905 673-0791	144	00-24	$00	IFG	Un BBS Francais	1A
Chip Software BBS	90	1	1905 680-2009	144	00-24	$00	MFG	All/RPG/DLP/Fa	??
Clone Systems III	92	1	416 769-8972	96	00-24	$00	IFG	-- --	FI
Club Insanity	95	1	416 494-8974	96	00-24	$00	M-G	Recently Revived	QB
Club Mac	92	1	416 462-2922	96	00-24	$$$	MFG	Graphics	Q6
Club Net	65	32	416 981-7786	288	00-24	$+$	IFG	Full Internet, Games	MU
Coalition	92	1	905 456-1918	288	00-24	$05	MFG	IBM/Amiga	PB
Compu Ad Hamilton	65	1	1905 549-7895	96	00-24	$00	M--	Free Buy/Sell	??
Compu Ad Toronto	84	1	416 497-3167	96	00-24	$00	M--	Free Buy/Sell	??
CompuCity	95	1	905 826-7536	144	00-24	$00	IFG	Nets, Files, Etc	RG
Computer Link	91	99	416 233-5410	288	00-24	$07	IFG	Easy way to BBS	??
CONTINUUM	94	4	905 792-3615	144	00-24	$10	CFG	Chat/Files/Games	GA
CyberBase BBS	65	1	905 338-0484	24	18-05	$00	CGF	BetterTechnology	RA
CyberSquirl BBS	88	2	416 422-1152	144	00-24	$00	CFG	SF Fandom, Stuff	??
Da Club	94	1	416 755-2404	144	00-24	$00	IFG	Dance Music	RG
Dark Side of the Moon	91	1	905 612-5361	384	00-24	$00	IFG	Free & No Ratios	RA
Daystorm Inc.	94	12	416 568-9068	144	00-24	$$$	MFG	WinMac GUI	??
Depths of Darkness	93	1	905 427-1652	144	00-12	$00	M-G	Message Galore	RG
Developer's BBS	91	1	905 457-4806	144	00-24	$15	IFG	Programming	WI
Deep Space #2	94	1	416 747-1171	144	00-24	$00	MF	Growing fast	??
Detached Process/2	90	5	416 447-5676	288	00-24	$05	IFG	OS/2 OS/2 OS/2 !	??
Dragsphere Inc	95	1	416 231-3182	144	00-24	$+$	M-	Music files	TB
EBBS Software Exchng	94	2	416 766-6880	144	00-24	$00	CFC	WC4! BP GRFX	WI
Eclipse InfoServices	92	1	416 736-5397	96	00-24	$00	MF-	Law School Info	WI
Electronic Realtor	94	2	905 944-3149	144	00-24	$00	MF-	Real Estate On	PB
Electronic Undergrou	95	1	905 612-7891	24	00-24	$00	MFG	----------	PB
Esperanto	87	1	905 731-2687	24	00-24	$00	CF-	Languages	RA
Essay-Net InfoService	94	1	905 731-2765	144	00-24	$00	C-G	Essays & Papers	MK
[F1]Help!	93	1	416 499-5892	96	00-24	$00	CF-	Help for NewUser	WI
FH Multimedia BBS	93	1	416 393-8214	96	00-24	$00	CFG	FHC'S Newest	DL
Falcon's Nest (PD)	94	2	905 711-6917	288	00-24	$00	IFG	Great Balance	RG
Far Jewel	93	1	416 690-2464	96	00-24	$00	MFG	-- --	QB
Forbidden Knights	93	1	905 620-7275	96	00-24	$00	IFG	Telegard Support	TG
Forgotten Realms BBS	63	1	416 491-5236	96	00-24	$00	MFG	Commodore 90megs	??
Futuretron On-Line	93	9	905 940-9140	96	00-74	$$$	MF	Windows + OS/2	QB
Galaxy Online	94	20	416 515-2001	288	00-24	$00	IF-	Internet, Win/Mac	??
Gameline	90	1	416 292-2391	96	00-24	$$$	IFG	Files!!!!!!!!	PB
Gemini BBS	93	1	416 921-2256	96	00-24	$20	CFG	Friendly base	WI
Generic	93	1	916 484-0607	96	00-24	$00	MF-	-- --	BB
Genesis BBS	93	1	905 878-5703	96	00-24	$00	IFG	-- --	SU
Geofuel Geoscience	93	1	905 829-4097	96	00-24	$29	M--	Ecology, Geology	??
GIF-Assorted Paradise	94	1	905 472-8186	144	00-24	$00	CFG	We own a scanner	RG
Good Things BBS	92	1	416 297-9176	96	00-24	$00	IF-	Christian Forum	WC
HKCNet A1 <INCH> 1	93	1	905 887-9876	168	00-74	$00	IFG	HK Mail linked!	1G
Harness the Ability	84	2	416 604-1221	96	00-24	000	IFG	-- --	TB
Hawk Eye BBS	93	1	416 491-7816	96	00-24	$00	CFG	486DX2 / Doors	SP
High Definition	94	1	416 298-9587	144	00-24	$00	IFG	Best T.O. BBS	RG
Homestead Knowledge	93	2	905 458-4812	96	00-24	$30	IFG	Pagan/Occult	MX
Hot Nights BBS	93	1	905 452-6304	96	00-24	$25	CFG	Great Sysop!!!	RO
I.C.E. BBS	93	1	905 839-2184	144	00-24	$00	IFG	Sound & Graphics	RG
IDS Place	84	2	416 252-1135	288	00-24	$25	IF-	Mail,Files,Sysop	PB
IFX Online Canada	95	2	416 444-5653	288	00-24	$10	IFG	FREE INTERNET !!!	PB
Infinity Online	94	64	416 638-9797	288	00-24	$$$	IFG	Internet Chat	MS
Inner Explosion	94	2	905 828-9427	192	00-24	$00	CFG	Velocity Msgs,CD-rom	RG
Insight Canada	95	1	905 458-4588	144	00-24	$$$	C--	Automotive News	??
InterACTION	94	2	416 821-4476	288	00-24	$00	IF-	Film & TV	TB
Internet Direct	94	84	416 233-2999	288	00-24	$88	IFG	Windows Internet	??
IO	93	1	416 736-5258	96	00-24	$00	MF-	-- --	??
IPG Mrkh/Scarb/Ajax*	85	1	416 693-7108	144	00-24	$90	IF	Internet	UK
IPG Oakville/Burlng*	85	1	905 825-9291	144	00-24	$90	IF-	International	UK
IPG Toronto/Missag*	85	4	905 624-3035	144	00-24	$90	IF	Programmers	UK
IPG Toronto/Missag*	85	4	905 624-4711	144	00-24	$90	IF-	Guild	UK
IT	61	3	416 658-9000	288	00-24	$$$	IFG	Spec Interests	MX
Job Search	65	1	416 588-9699	96	00-24	$00	IMF	Jobs/Resumes/etc	PB
Kance BS-BBS	95	2	416 502-3611	96	00-24	$25	IMF	Recovery Busines	MX
Kempp BBS	91	1	416 503-1289	144	00-24	$00	IFG	Major RA Support	RA
Knights Castle Sys	88	1	905 279-2172	144	00-24	$16	CFG	BBS without peer	RG
Lamarty CrossRoads	89	1	416 222-0474	288	00-24	$00	MF-	20,000 Files	PB
LanternRock BBS	92	2	416 690-8744	96	00-24	$00	IF	Fido, FTP Option	??
Leftover Hippies	91	1	416 785-3188	96	00-24	$00	IFG	Mac, Atari,Gcr	FO
Logic Info System	92	1	416 467-7921	288	00-24	$00	CF	Apple II, Mac	??
Lost City of Gold	95	1	416 211-3362	144	00-24	$00	CFG	Virtual Village	TB
Magrathea	95	1	416 971-7602	144	00-26	$05	CFG	Music and DOOM!	RA
Master Dave's BBS	95	1	416 465-5540	144	00-24	$00	CF-	Red-Hot Debates!	RG
Maximum Overload	94	1	905 727-0740	288	00-24	$00	IFG	3 CD's -- Games!	RA
Men's Issues	65	1	905 850-6153	24	00-24	$10	CF-	Divorce/Prnt	MI
MeTeStAdo's BBS	88	1	416 497-9093	144	00-24	$00	IFG	2000 Users	MX
MeetNet BBS	94	4	416 324-0974	144	00-74	$20	IFG	Adult GAY/SI 665	RG
Metropolis	92	14	416 292-8757	144	00-24	$$$	IFG	Adult/Social/Ent.	AL
Microsoft Canada	93	1	905 507-3022	144	00-24	$00	-F	MS D/L Service	??
Micro Stop II	63	1	416 264-3028	96	00-24	$00	MFG	-- -- --	QB
Millenium House	93	1	416 741-9167	96	00-24	$00	IF	F250/99 Etobicke	OP
Millennium III	93	1	416 466-9341	96	00-24	$00	I--	F834 Toronto ON	II
Mike's Gameroom	61	1	905 828-6801	96	00-24	$05	CFG	We're growing	1G
Mississauga Library	95	1	905 615-3699	96	00-24	$00	---	Book Catalogue	??
Monty Python's BBS	65	1	416 266-9010	96	00-24	$$$	MF-	Humour IBM,Atari	RS
News Center BBS	88	1	905 428-2213	288	00-24	$00	IFG	Net/Games/Files	SP
NEO BBS	95	1	416 782-5742	144	16-20	$00	MFG	1 Voice 761 2201	RA
NEW-CANADA-PBBS	90	1	416 265-6837	24	00-24	000	I-G	For ADAM Compute	??
Night Sister Central	91	1	905 453-8856	168	00-24	$00	IFG	We have it all !	1G
NikoNiko! BBS	63	1	905 272-7241	144	00-24	$05	CFG	Anime/Files	1G
Northern Link	65	1	905 477-0779	288	00-24	$00	MFG	One of the best!	RG
Nova BBS	92	1	1905 476-7494	144	00-24	$00	CFG	Doom Graphics	SI
Numbers BBS	91	1	416 551-7488	24	00-24	$00	IFG	Mixed	SU
NuttyProfessor's Lab	93	1	905 542-0211	144	00-24	$$$	CFG	Great Users	RG
OASIS Online Line 1	94	2	905 619-2074	288	00-24	$05	IFG	Great Games, Chat	GA
OASIS Online Line 2	94	2	905 619-2487	144	00-24	$05	IFG	CDRom, MajorNet	GA
OGS*Kintracers	66	3	416 750-9767	288	00-74	$00	IF	Genealogy Only	PB
OS2 Support	42	1	416 492-5042	96	00-24	$00	MF-	IBM OS/2 BBS	??
OSIS	93	1	416 265-7005	144	00-24	$+$	CF	Personal Finance	WI
OptiComm	92	17	416 621-2063	168	00-24	$10	IFG	Net	GA
OptiComm	92	53	416 921-6366	24	00-24	$10	I-G	Chat	GA
Open Windows	93	4	905 882-2172	144	00-24	$00	CF-	True Windows GUI	??
Our World	94	1	416 740-4346	144	00-24	$00	IF-	PCMusic/Demo	RG
PaCrl_O Communication	91	1	905 887-0669	144	00-24	$$$	CF-	Unlimit'd DL	??
PC Connect	94	2	416 733-9052	96	00-24	$00	IFG	----------	??
PCCT BBS 6)	84	1	416 616-6394	168	00-24	$$D	CF-	Members Accepted	PB
PSP Club	93	1	416 512-6596	96	00-24	$00	CF-	C/C++ ASM TP	PB
Pan Transit	65	1	416 539-0523	96	00-24	$00	MFG	C64 BBS	??
Pan-Galacticom	92	1	905 820-1897	144	00-24	$00	CFG	DS9 Format/Games	TG
Pearson Power	95	2	416 396-5937	144	16-08	$00	IFG	PC Music Scene	RG
Photo 334 BBS!	95	1	416 539-9591	96	00-24	$00	IFG	Photography BBS	MK
PickeringBBS	95	1	905 420-0361	144	00-24	$00	IFG	Online CD-ROM	??
Pleiades Pleione	86	1	416 699-0302	144	00-24	$30	IF	PC, Mac, Amiga	F6
Power Windows	93	64	416 909-8269	288	00-24	000	MCF	Win Interface	??
Praxis BBS	96	1	905 272-4455	144	00-24	$00	IFG	Alternative Nets	??
Private BBS	93	1	416 650-2720	144	00-24	$00	IFG	VGA/RIP/OL Games	SP
Programmers Online	93	2	416 512-1628	144	00-24	$00	IF-	Programming only	PB
Project X	1982	4	905 792-7890	12	00-24	$$$	IF-	Amat. Radio & Dlp	PB
Rainbow Bridge	93	1	905 420-7380	144	00-24	$05	IFG	Files/Games/MSG	RA
Ravages of Time	94	1	1905 623-3369	144	00-24	$00	IFG	6 o.1 's HQ	MX
Renegade Legion	88	6	416 291-0282	288	00-24	$00	IFG	Check us out!	PB
RinkNet	93	4	416 299-8839	144	00-24	$05	CF-	Hockey Related	PB
Rose Media HST 14.4k	96	45	416 713-2285	168	00-24	$99	MF-	FilesFilesFiles!	PC
SMARTalec	80	1	905 278-9495	144	00-24	$40	IF-	Genealogy BBS	PB
Sea Dog	63	1	416 736-9063	144	00-24	000	IFG	type MCS- 1400!!!	RG
Secrets o/t Universe	94	3	905 274-6715	288	00-24	$00	IFG	Fresh New Look!	RA
SeedSowersFriendly 1	92	1	416 498-5256	96	00-24	$00	MF-	Christian Board	PB
SeedSowersFriendly 2	92	1	416 498-5982	96	00-24	$00	MF-	Christian Board	PB
Select-A-Disk	94	4	416 969-8218	144	00-24	$00	IFG	Everything! Call !	GA
Sheridan College	91	1	905 845-3224	96	00-24	$00	I--	1303 Oakville ON	FI
Ship To Shore OIS	89	1	416 975-1547	96	00-24	$15	IF	For SAILORS!!	WI
Slimeball	93	1	905 824-4279	144	00-24	$00	CFG	VGAP Slime!	??
Smart Machine Online	93	2	416 633-1865	288	00-24	$05	CFG	Tech Support	PB
SoftComp Systems Ltd	63	1	416 967-9743	96	00-24	$00	CFG	Need Users Fast!	PB
Songwriters Pen	92	1	416 690-9973	144	00-24	$00	CFG	In Red Ink	MX
Sony Music Online	96	1	416 391-1980	144	00-24	$00	IF	Recorded music	??
South of Hell	94	1	416 281-4093	144	00-24	$00	MFG	Very friendly !!	RG
Spotlight	63	1	905 270-7045	24	00-24	$00	CFG	-- --	PB
Steel Fighter	61	2	416 252-3828	96	00-24	$00	IFC	PhantomNet WHQ	PB
Structures	93	1	416 778-4193	96	00-24	$00	I-	Computers Spec	PB
SubSystem Alpha	91	1	905 273-6300	96	00-24	$$$	IF-	P2 Commodore&IBM	PU
Substance Abuse Net	96	4	416 595-6069	288	00-24	$00	CF-	Addiction Info	GA
Synapsis	96	7	416 498-4744	144	00-26	$10	CFG	Friendly & Fun	GA
TAG (TelecomAdvGames)	63	1	416 339-0900	144	00-24	$$$	MFG	TrueAdventure BBS	??
THE BARN	95	4	416 426-7402	288	00-24	$15	CF-	Horses	??
THN Systems Canada	93	1	416 255-2484	144	00-26	$+$	IFG	TGbeta/HAM&THNet	TG
TBM Wizard	93	1	416 743-6703	96	00-24	$00	I-	$10 Rexdale ON	RA
TPUG MississaugaLine	81	1	905 273-6300	96	00-24	$$$	IF-	P2 Commodore&IBM	PU
Team Work BBS	88	1	416 226-8567	288	00-24	$00	IF-	Oriental Culture	TG
Test Pattern Node 1	93	5	905 890-2531	96	00-24	$00	IFG	1.8 Gig of Files	SP
Test Pattern Node 2	93	3	905 890-4545	24	00-24	$00	IFG	1.8 Gig of Files	SP
The Amateur Radio BBS	92	1	905 827-0704	96	00-24	$00	I--	1304 Oakville ON	FI
The Atrocity Exhibition	93	1	905 796-3385	144	00-24	$00	IFG	Intellegence	??
The Black Adder	92	1	416 222-8366	144	00-24	$05	IFG	Sound/RIP GFX/++	RG
The Cellar BBS	93	1	416 604-3379	96	00-24	$00	IFG	Home Of PrideNet	SU

BBS LIST FOR THE GREATER TORONTO (416, 905) DIALING AREA

NAME OF BBS	YR	LN	AREA & BBS #		BPS	OPEN	FEE	MFG	SPECIALITY	SW
The Coliseum BBS	94	8	905	850-8711	144	00-24	$25	CFG	Files & Games	??
The Comedy MiX	95	1	905	275-4556	94	00-24	$00	FG	Pears Galore	RG
The CompuNet BBS	90	5	905	450 1668	24	00-24	$$$	IFG	Excellent Layout	MX
The Crystal Gryphon	92	4	416	422 3855	94	00-24	$00	CFG	RPG Support	RA
The Cumaroe BBS	94	1	416	263-4633	144	00-24	$00	IFG	Over 1.7 GiGs!	RA
The EBBS SoftwareEX	94	1	416	766-4838	144	00-24	$00	CFG	Relaxed Environmt	WI
The E Mail Machine	94	1	416	494-6122	144	00-24	$00	MFG	F-Mail unique	??
The Forbidden Lair	95	1	416	767 5112	144	00-24	$00	MFG	New, friendly	RG
The French Connection	93	3	1905	632-5653	144	00-24	$00	CF-	ASP/10 years old	??
The Hamshack BBS	94	1	905	827 1376	144	00-24	0	FG	Ham Radio/Elect	SP
The Haven	94	1	905	848-5935	144	00-24	$00	CF	Music/Art/Msgs	RG
The Home Run BBS	94	2	905	508-4568	144	00-24	$00	CFG	Great files & Fun	??
The Hot Spot BBS	92	13	416	780-0248	144	00-24	$10	CFG	Chat, Files, Forums	GA
The Human Race	95	1	416	299-1778	288	00-24	$00	IFG	VGA Online 1GIG	BD
The MIX (Aurora)	88	1	905	841 8197	168	00 24	0	IFG	GTP Net/Echomail	G1
The MIX (Newmarket)	88	1	1905	7150582	168	00-24	0	IFG	GTP Net/Echomail	G1
The Metal Militia	95	1	905	294-8369	144	00-24	$00	MFG	Number of Files	RG
The Next BBS	91	1	416	431-4529	94	00-24	$$$	IF	Star Trek Info	RA
The OSH Exchng	95	4	1905	572 2587	94	00-24	$50	CF	Health & Safety	1B
The Planet Telostic	93	3	905	791 8852	144	00-24	0	CF	Unique FRP Games	??
The Pleasure Zone	93	3	905	677 5081	24	00-24	$00	MFG	Homemade BBS	HM
The Renaissance BBS	92	1	905	475-2155	144	00-24	$00	IFG	**LotusFiles**	HM
The Rocket BBS	94	1	416	248-5725	288	00-24	$00	CFG	File/Msgs/Game	RG
The Safety Shoppe	92	1	416	429-8231	144	00-24	$00	IF	OH&S Oriented	??
The Servants 1/4	92	2	905	840-9608	94	00-24	$00	IFG	Christian Based	PB
The ShareWareHouse	94	1	416	492 5285	144	00-24	$25	IFG	Many Online CD's	RG
The SmallBiz Network	94	1	416	750-9962	94	00-24	$00	IF	Business Network	??
The Sonic Community	95	1	905	905-8474	144	00-24	$00	MF-	Music Files	MA

NAME OF BBS	YR	LN	AREA & BBS #		BPS	OPEN	FEE	MFG	SPECIALITY	SW
The Spinal Tap BBS	92	1	905	275-0278	288	00-24	$00	IFG	f512 Mississauga	MX
The Standard BBS	93	1	905	275 5538	192	00-24	$00	IFG	NetMail CD ROM	PB
The SuperContinental	89	1	416	221 3839	144	00-24	$00	IF	Note new number	MX
The Switch Board	95	1	905	884-9287	144	00-24	$00	MFG	Music/Gifs/Games	TB
The Toast Exchange	93	1	416	651-5673	96	00-24	$00	MFG	Toast Obsessive	HM
The Trap Line	91	1	416	588-2964	94	00-24	$00	IF	Furry BBS	MX
The Underworld	95	1	905	771 9265	144	15-23	$00	CFG	Friendly sysops	RG
TimberlineOnlineSys	94	1	416	537 1242	144	00-24	$00	MFG	400 megs+ –	??
TradeWinds	92	1	416	503-4388	96	00-24	$00	IFG	People Board	G1
Tropical Paradise	94	1	416	534 0823	168	00-24	$00	MFG		??
Tymnet	91	1	416	365-7638	24	00-24	$$$	MFG	...	QB
UHU STIC 11PM 7AM	93	1	905	642-2179	144	23-07	$00	CFG	Home of CDCnet	RG
University of Hell	90	1	905	821 2522	168	00-24	0	CFG	UNIV/CO1G Users	TG
USS Proxima	94	1	416	265 3867	144	00-24	$00	MFG	Star Trk/Sci-fi	??
Ultra-Net	95	1	416	469 5286	288	12-24	$00	IFG	Lots of Stuff!	RG
Virtual Chaos	93	1	905	458 2280	144	00-24	$00	IFG	Tons of files!	MX
Voodoo Lounge	95	1	905	825-8254	168	00-24	$00	CGFG	For Programmers	SP
Warp 6	85	1	416	638 1540	144	00-24	$00	C—	Intelligent Talk	??
Wasteland BBS	94	2	416	494 0078	144	00-24	0	IFG	WHQ of DeuyNet	RG
Westerna BBS	93	2	416	241-9793	288	00-24	$00	CFG		PB
Weeguy's BBS	92	1	416	503 3473	144	00-24	$00	IFG	2.0 GIGS Online	RG
Workable Concepts BBS	93	1	905	949-4838	96	00-24	$00	IF-	P10 PunterNet	PU
WorldChat 1M	94	26	1905	657 1827	192	00-24	$$$	IFG	Full Internet	GA
Worth Evey Byte	92	18	905	738 1077	144	00-24	$10	IFG	Files/Games/Chat	GA
Wreckage	94	1	905	949-6938	144	00-24	$00	CFG	Giga of files	??
XTC	94	1	905	791-4867	144	00-24	$00	IFG	Music/Demos	RG
Your Choice TV Las	94	4	416	538 1628	144	00-24	$00	CF	Categorized TV	TR

Explanation of Columns and Codes

NAME OF BBS
The name by which the BBS is known

YR
The year the BBS was commissioned

LN
The number of BBS Data Lines or Nodes available at PHONENUM given

PHONENUM
The data line phone number of the BBS
999-9999 refers to a private BBS or a BBS not accepting any new members.

BPS
The maximum bps rate supported at PHONENUM (in hundreds)

ACCES
BBS access times in 24 hour format.

FEE
The cost to become a member of the BBS in question

$00	Free Board No Charge
$$$	Cost Unknown
0	Donations or Fee Optional
$+$	Small Minimum Nominal Fee Charged Plus Donations Optional
$95	Yearly Membership Fee $95.00

MFG
Indicates if Messages, PD-Files and/or on-line Games are supported.

M-G —	Messages and Games supported No Files
M —	Only local Message bases supported. No files, No Games
C —	Local Conferences and Message bases supported only
I —	International NetMail Message and Conference bases supported
F —	Only Files available No Messages, No Games
F —	Full Internal
???	Not Verified Can t Connect

SPECIALITY
The most important features of the BBS, or node # "______ " means that the Sysop did not convey to the IPG what their BBS's specialization is, or that they specified that no features should be mentioned.
"Private Board" means it s NOT a public BBS and should be accessed with caution and only after having spoken with the owner "n### Location" Shows that this BBS is also a WAN (Wide Area Network)
n means the code for the WAN's name

F = FidoNet Node
P = PunterNet Node
B = BelayNet Node
O = Other net
means the Node number of that WAN
e.g., "F412 Mississauga" indicates a Fido network node at a location in Mississauga.

"1 Voice 555 1212" means the Sysop requires you to call him/her first at the voice phone number given then they will give you access.

"Temporarily Down" BBS is temporarily out of commission due to major repairs maintenance, rebuilding or renovations

SW
Contains a 2 character code for the BBS software used

AL	Alchemy
1B =	1BBS RG = Renegade BB = BBS PC
1H =	In-House Software BD = Bobs-Board
BM =	BBG Management System
M2 =	Michtron 2.0 RS = RatSoft
CH =	Chairman
MI =	MiniHost
MS =	Major System
MU =	Major System/Unix
SL =	SearchLight DB Daconon
MX =	Maximus
SP	Spitfire
EM =	Emulex/ EMI
NC =	NCCT Icon
SU =	SuperBB
FI =	Fido
OP =	Opus
TA	TAG
FO	Fore
PB =	PC-Board
TB =	TBBS
GA =	Galacticom
PR =	Pronet Syste
TG =	TeleGard
GH =	PC-Ghost
PU =	Punter/PCPN
UL =	UltraBB
GT =	GT Power
PY	Pyroto
VA =	Vanguard
HE =	Herme
QB =	QuickBBS
WI =	Wildcat!
HM =	Home-Made
RA =	Remote Access
WW =	WWIV Net
HO =	Host
BB =	BBBS-PC
??	Other

Credits

This BBS directory listing is provided by IPG — The Programmers Guild, Canadian Chapter Toronto Branch
To have your BBS appear in the IPG a monthly listing. Simply call the IPG's BBS (905) 824-4731 and fill out the questionnaire
IPG The International Programmers Guild
Canadian Chapter, Toronto Branch, Ontario
Data lines IPG #BS
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FAX line (905) 824-5139
InterNet Address, Admin@Toronto.Can.IPGuild.Org

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BBS Etiquette

Bulletin Board Services come and go with alarming frequency When dialing a number you have not called before PLEASE call WITHOUT a modem the first time and listen for the high-pitched "carrier" tone to verify that a modem is in service Then, call back with a modem. DO NOT autodial an unknown number without checking it first. Thank you.

ATTENTION

INTERNET PROVIDERS

Fill in the form below to have your company listed in *The Computer Paper's!* November survey of Internet Providers. (Fax Form to (416) 588-8574)

Company Name ____________________
Contact ____________________
Address ____________________
City __________ Postal Code __________
Tel ________ Fax ________ Modem ________
Email Address ____________________
WWW Site ____________________

SLP ☐ PPP ☐ UUCP ☐ ISDN ☐
Leased Line ☐ Dedicated Dial Up ☐
Domain Registration Fee: __________
Maximum Modem Dial up Speed __________
List your Internet Access Package(s) Max 3:
____
____
____
User to line Ratio Policy: Yes ☐ No ☐
If Yes, User to line Ratio: __________

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Personal Universal Phone Number Coming

BY SYLVIA DENNIS

STOCKHOLM (NB) — Forget analog cellular forget digital cellular forget call divert and start thinking about Universal Personal Telecommunications, or UPT for short Swedish comms giant Ericsson has unveiled what it claims is the world's first complete UPT system in Norway

According to Ericsson, the UPT system will shortly be available on a global basis, and was developed in close collaboration with Telenor (formerly Norwegian Telecom), which is marketing the technology in Norway

"This development heralds a new era in personal communications. It goes a long way towards the ultimate goal of having phone numbers associated with people rather than with network locations We can offer phone subscribers complete mobility via whichever phone service they choose," explained Olav-Henrik Kjorstad a spokesman for Telenor.

UPT has been on the drawing board for several years from the world's telcos. The idea is that one number can contact one person, no matter where they are and no matter what communications technology they are using.

The UPT technology has been on trial for around a year with Telenor and the technology is now being offered to customers in Norway, before being offered on a global basis later this year.

The Norwegian implementation offers a single personal UPT phone number for someone no matter where in the world they are. All outgoing calls are charged to the UPT account number. To call a subscriber of UPT you simply dial the UPT number instead of calling the many places where you think that person may be.

According to Telenor in the future the UPT numbers will also be able to support fax data and video transmissions. Calls are routed through an Ericsson-supplied AXE switch in Norway The UPT applications are based on Ericsson's AXE-based Intelligent Network platform IN 2.0

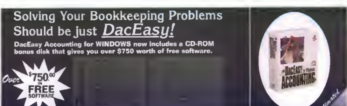
Unlike many other follow me systems, UPT mandates that as the user logs into the network on a phone and tells the central switch that they can be contacted on a particular line. If someone calls a specific UPT number for them, the network intelligently routes calls to that line.

If, for some reason, that line cannot be reached — perhaps it is busy — then the call is referred back to the central switch for routing to an alternative line or if all routes are exhausted to voicemail. To prevent a call being diverted "around the houses" to reach its ultimate destination, all call routes drop back to their most logical path

For example if a party in Boston calls a UPT subscriber and the call routes to San Francisco and the line is busy, if the call were to be routed to a New York voicemail the Boston exchange would be aware of this and drop the SF/NY route and route the call directly to New York. All this happens quickly and without any input by the caller.

"Ericsson has gained valuable experience during the trial We now have the first UPT system ready to be sold world wide to major telecom operators as well as to new operators and the system will be continuously developed to meet future customer demands " said Paul Fjuk, Ericsson's product manager ❑

SHOWCASE



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Beyond the Mechanics: Web Design Issues

BY TIM GUAY

Once you've mastered the basics of HTML and CGI scripting, it is vital that you tackle the design issues. When you put up a site you have a potential audience of over thirty million users. Their image of you or your company is reflected in what they see. You want your site to be cool, not lame.

So what makes a site cool? Though subjective, there are some general design goals that, if they are met, go a long way in making a site cool.

The goal, combined with the audience, drives the design from start to finish and provides the underlying focus found in all good sites

Design Goals

There are various goals that need to be considered when designing a site:

- **Content** — The content must be directed towards a specific audience and have a specific communications goal.
- **Layout** — The layout must be aesthetically pleasing, balanced and uncluttered.
- **Physical Bandwidth** — physical bandwidth must be minimized as to ensure quick response times.
- **Cognitive Bandwidth** — cognitive bandwidth must be minimized to ensure the user easily and accurately grasps your message.
- **Navigation** — Navigation must be intuitive, clear and flow well.
- **Interactivity** — the highest possible level of interactivity must be provided.

Content is King

Your site may have the coolest layout and special effects on the planet, and everybody may visit it, but they will not return if you have poor content. While defining good content is also subjective, there are some general guidelines.

The first of these is: know your audience. Knowing your audience is the key to effective communications, for that knowledge not only affects the nature of the content but also layout, navigation and interactivity.

For example, a music site aimed at professional electroacoustic musicians would be quite different than one aimed the listeners of such music. The nature of the content, though dealing with the same general subject, would be quite different.

Once you know your audience, you need to have a communications goal. In other words, what message, knowledge or experience do you want the audience to walk away with? Again this affects not only content but also layout, navigation and interactivity. The goal, combined with the audience, drives the design from start to finish and provides the underlying focus found in all good sites.

A note on commercial sites: if your site is pure advertising without any other form of content, it will experience less traffic than it otherwise would. Adding relevant content that is either informative or entertaining will go a long way towards generating repeat visits.

For example, a real estate site could contain background information on the community or information on what to look for when buying a house. Failing basing its own content, your site can be embedded within a larger content based site, or linked to relevant content based sites.

The effectiveness of the content in addressing the audience and meeting the communication goal depends on more than the content itself. How that content is laid out plays a key role in determining the site's effectiveness.

Layout: Aesthetics Count

There are several interrelated aspects to layout that you need to consider when designing an effective site: aesthetics, navigation, media mix, bandwidth, and interactivity. An aesthetically pleasing site is subtle, not overpowering, as well as uncluttered and balanced.

Good aesthetics mean the message is framed and highlighted. The layout, navigation, media mix, as well as the bandwidth requirements all must stay out of the message's face. Poor aesthetics result in the message being lost in the uproar of flashy effects, unintuitive navigation, bandwidth hogging and inappropriate media mix.

The Page

The basic unit of a web site is the page; thus the page is the focal point for our aesthetic efforts. I strongly believe that the page should fit on the screen of a standard 14-inch monitor. By fitting entirely on the screen, the page's message can be taken in as a whole without the distraction of scrolling. The screen becomes a self-contained message chunk of an easily-digested size. Limiting page size to a screen also has the advantage of reducing download time, though we will look at bandwidth issues later in the article.

The page also needs to be uncluttered, readable and balanced. A cluttered page gets in the way by distracting the user and forcing them to work harder to decipher the message. Strive for a high level of physical readability: don't use backgrounds that obscure the text, use a larger font size. A balanced page layout focuses attention to the message, pulls the user to it, not away from it. Any effect, any background, any multimedia must contribute to the message, not distract from it.

Reducing Bandwidth

Having pages that are bandwidth hogs will not only distract the user by breaking the smooth navigational flow with long downloads, it can even drive away users. A case in point: I checked out this Star Trek site but gave up midway through downloading their 420K main page. I'll wager that I'm not the only user who never got past the main page. To paraphrase Milo Frank, you have 30 seconds to get your page across.

You should strive to keep your pages lean enough to download in 30 seconds or less over a 14.4 dialup line. If it will take longer, warn the user and give them the choice. Mention the size of any video or audio clip. Use thumbnail anchors for any large 60K+ graphic so they have the choice whether or not to download the larger graphic. Tag all your graphics with the vertical and horizontal size; this speeds up the download. Use graphic tools such as Imagemagic to reduce the graphic file size by reducing the color pallet. Keep your pages down to a single screen. Far more important than reducing physical bandwidth is reducing cognitive bandwidth.

Cognitive Load

By cognitive bandwidth, I am referring to the time and mental effort it takes for the senses to take in, and the mind to process, information. Due to the ever increasing amount of information we need to take in when functioning in contemporary society, the demand on our cognitive bandwidth has significantly grown.

The most efficient way for you to reduce cognitive bandwidth is by employing

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Web Design Issues

continued from page 129

semantic compression on your message. Semantic compression refers to the density of information transmitted by given media. The cliche "a picture is worth a thousand words" describes the high semantic compression of graphic images over text.

Imagine if you will how many words it would take to give a detailed description of a city skyline. A photo would take far less space and far less cognitive effort to process. From low to high compression media are ranked as follows: text, audio, still images and video.

The base semantic compression of a media is increased if the message or effect triggers cultural archetypes or memories of individual human experience. Triggering these increases the overall information density by blending it in with previously stored information. For example, a simple phrase such as "first love" can trigger a very dense multisensory information stream complete with reinvoked emotions.

Semantic compression is also heightened by increasing the level of user interactivity with the information stream. This heightening is the result of the mind focusing its resources on interacting with the information. Your goal is to find the right media mix for your message, a mix that will result in the optimal use of both cognitive and physical bandwidth. It should be noted that for best results priority should be given to cognitive bandwidth.

Navigation

Good navigational layout also reduces cognitive bandwidth by reducing the mental effort expended in getting around your site. When planning the navigational layout it is crucial to remember that the Web's underlying structure is hypertext. Hypertext's nonlinearity gives you a powerful and flexible creative tool. However that power also requires greater effort to tame. Poorly thought-out hypertext is a navigational nightmare of tangled mazes, infinite loops, cul-de-sacs and dead links. So don't start linking without thinking!

You should strive to keep your pages lean enough to download in 30 seconds or less over a 14.4 dialup line

Well thought out hypertext reduces cognitive bandwidth by replicating how the mind would naturally organize the information. For that reason one of the best tools you can use for designing your site is a variation on a mind map.

The bubbles will be your pages and the connecting lines your links. See how your mind naturally organizes your site, what threads it weaves through the site. The resulting mind map will be your blueprint. ❑

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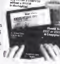
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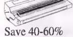

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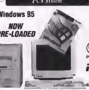

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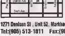

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VILLAGE COLLEGE BOOKSALE. September 27 6pm-10pm, September 28 & 29 11am-8pm. September 30 11am-4pm. Alumni Hall Old Vic 91 Charles St. W (at Museum subway exit). For more info call (416)585-4585

FALL BUSINESS & COMPUTER SHOW September 27 28 1995 Ottawa, ON

INFORMATION CANADA. September 27 30 1995 Toronto ON. For more information call 203-226-6967

HOW TO CHOOSE A HOME BASED BUSINESS ORGANIZATION. September 29 30 1995. 10am -5pm at 999 Canada Place. Vancouver Trade & Convention Centre Vancouver BC. Wheelchair access. Parking $4/hr

OCTOBER

ONTARIO COMPUTER FAIR. Sun. October 1 1995 Kitchener Memorial Auditorium, sponsored by Computer Source Magazine. $1500 visitors, 90 exhibitors; 150 per table. Contact Jim Creighton 185 MacDonell Ave. Toronto, ON M6R 2A4 or phone 1-800-465-8286

NETCON 1995 Canada's only event devoted exclusively to networking and connectivity issues, featuring exhibits and a conference. Wednesday October 11 & Thursday October 12 10am - 5pm. Metro Toronto Convention Centre 255 Front St W. Admission to exhibits & keynote speakers is free. A 3 day pass to conferences is $695. For more information call (416)621-8136.

SMALL BUSINESS WEEK 1995 October 22 1995 Vancouver BC. Location to be announced

WOMAN IN MULTIMEDIA. A five part breakfast series starting Tuesday October 24 to November 21 1995 at the Design Exchange Toronto. $35.00 per session or $150.00 for all five. For more information call Barb Anglez at (416)363 6316.

ENTERTAINMENT FEST at the Parents and Kids Show October 27 29 at the Vancouver Trade & Convention Centre. For more information call Corporate Events Management Inc at (416)869-0141

NOVEMBER

CLIENT SERVER EXPO. November 7-8, 1995 Toronto, ON. For more information call National Productions at 508-745-8010

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THE HOME COMPUTING & ENTERTAINMENT SHOW November 14 & 19 1995 at the Toronto Congress Centre (650 Dixon Rd at Highway 27). Sat. 10am - 6pm Sun. 11am - 6pm. Admission $7 per person. For more information call Bob Paiden Show Manager at (416)487-8592 ext.483

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CONSUMER TECHNOLOGY WORLD 95 ATLANTA October 14-16 1995. For more information call National Productions 408-778-5200

OOPSLA October 15-19 1995 Austin, TX. For more information call SIGS at 212-868 7448

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COMDEX October 26 27 1995 Asia Singapore. For more information call Interface Group at 617-449-6800.

FALL INTERNET WORLD October 30-November 2, 1995. Boston MA. For more information call Mecklermedia 203-226-6967

VIRTUAL REALITY EXPO November 2-4 1995 New York NY. For more information call Mecklermedia 203 226-6967

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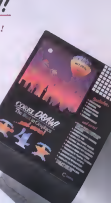

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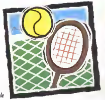

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